

JPRS-UBB-86-012

20 JUNE 1986

19981112 132

USSR Report

LIFE SCIENCES

BIOMEDICAL AND BEHAVIORAL SCIENCES

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20 JUNE 1986

USSR REPORT
LIFE SCIENCES
BIOMEDICAL AND BEHAVIORAL SCIENCES

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AGROTECHNOLOGY

SELECTED SYNOPSES OF ARTICLES IN 'JOURNAL OF THE BELORUSSIAN SSR ACADEMY OF SCIENCES: BIOLOGICAL SCIENCES SERIES', SEP-OCT 1985

Minsk VESTSI AKADEMII NAVUK BSSR: SERYYA BIYALAHICHNYKH NAVUK in Russian
No 5, Sep-Oct 85 pp 124, 125

UDC 581.143+633.16

EFFECT OF EXOGENOUS GIBBERELLIN ON MORPHOGENESIS OF TRITICALE PLANTS

[Synopsis of article by S. A. Kaller, N. A. Laman, N. N. Vlasova and I. I. Gorelik, pp 41-46]

[Text] The growth reaction of phytomer elements of the basal zone in the shoots of four forms of triticale in response to processing with gibberellic acid is studied. Specific features of triticale are revealed in the manifestation of this reaction. Presence of a direct dependence between plant height and sensitivity to gibberellic acid in the elements of the basal zone of a shoot in the tillering stage makes it possible to use phytohormone processing to select short-stem genotypes resistant to lodging in the course of triticale selection. 3 figures, 18 bibliographic references.

UDC 581.2

NUCLEASE ACTIVITY IN CHLOROPLASTS OF RYE INFECTED BY RUST FUNGI

[Synopsis of article by D. K. Ges, E. Ya. Serova, G. I. Spiridonova and N. P. Neklesa, pp 60-63]

[Text] Rust infection causes deviations in the activity of nucleases contained in the chloroplasts of rye, the direction of which varies depending on the stage of pathogenesis. 1 table, 12 bibliographic references.

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11004

CSO: 1840/413

BRIEF

BIOTRON FOR AGRICULTURAL RESEARCH--The event was marked by two flourishes of the pen--signatures on a formal document that turned over the laboratory wing. The seven-story building of distinguished architecture together with an amazing research installation--a biotron--was jokingly given another name at the same time in addition to its official name. This name was thought up in the last hours of the exiting year--a hive for electronic bees. A. A. Zhuchenko, director of the Institute of Ecological Genetics and president of the Moldavian Academy of Sciences, said: "There is some scientific basis for this jocular name. If we call the miniature instruments, the electronic sensors, a swarm that literally like bees completely cover our experimental plants, then the comparison is correct. Each "bee" carries into the laboratory hive its own nectar flow--a bit of information. This information is more valuable to the researcher than nectar because the information, having passed through an electronic computer which acts as an intermediary-translator, appears on the display screen. The essential tables and graphs are handy not only at the completion of an experiment, but in the course of the experiment as well. Because of this, scientists can "converse" with a plant--they can ask it how it feels under any given conditions. Heat and cold, and an excess or shortage of life-giving moisture may be produced at the will of a scientist in the artificial climate chambers of a biotron. We can also find out what takes place in a specific developmental stage with drops in temperature and moisture inside of leaves, flowers and fruits." Earlier, geneticists, physiologists and breeders did not even dream of such potentialities. They had to wait patiently and be satisfied with meager and often woefully out-of-date information. The biotron installation at the Kishinev complex lays a foundation for a large biological research center and a new academic town. A radically new direction is being started--an adaptive strategy for the intensification of agriculture. A potentiality for designing types of varieties and hybrids of plants that combine high yield with resistance to unfavorable conditions is being developed. [By B. Yevladov] [Text] [Moscow PRAVDA in Russian 3 Jan 86 p 3] 12525

CSO: 1840/329

ROLE OF MATHEMATICS IN INCREASING FARM PRODUCTION

Moscow ZNANIYE - SILA in Russian No 1, Jan 86 pp 11-13

[Article by B. Gnedenko, academician, UkSSR Academy of Sciences]

[Abstract] This article entitled "A Mathematician Goes Into A Field" presents a discussion, by B. Gnedenko, of some aspects of the role of mathematics in increasing farm production in the USSR. Gnedenko emphasizes that fulfillment of tasks set by the October 1984 Plenary Session of the CPSU Central Committee on Land Reclamation requires mathematical studies involving development of models related to the effects of reclamation, use of fertilizers, concentration of livestock in small areas, development of fast-growing varieties of plants etc. He describes his interest in solving problems related to the Food Program and the increase of farm production, which began 10 years ago in Lithuania, when he went into a recently-harvested field and began to wonder how much grain was lost in harvesting and how this loss could be minimized. He discusses attempts to develop optimum harvesting regimes by use of mathematical analysis and problems related to harvesting in areas having protracted rains at harvest time. He briefly discusses the use of mathematical methods to solve problems related to density of sowing of plants, pre-sowing preparation of fields, prevention of yield loss from micro-damaged seeds, mathematical analysis of farm machinery design to ensure optimum efficiency of operation, determination of optimum size and make-up of farm motor pools and use of mathematical methods in developing new varieties of plants.

2791/9835

CSO: 1840/347

LOW TEMPERATURE EFFECTS ON PHOTOSYNTHESIS IN WINTER WHEAT

Alma Ata IZVESTIYA AKADEMII NAUK AZERBAYDZHANSKOY SSR. SERIYA BIOLOGICHESKAYA in Russian No 3, May-Jun 85 pp 12-26

[Article by G.N. Parshina, M.K. Karabayev, R.A. Alybayeva and F.A. Polimbetova, Institute of Botany, Kazakh SSR Academy of Sciences, Alma Ata]

[Abstract] An analysis was conducted on the course of photosynthesis and the state of the photosynthetic apparatus in two varieties of winter wheat differing in frost hardiness, Albidum-114 (5-scale units) and Kazakhstanskaya-126 (3.5 scale units), to determine the effects of natural growth conditions, growth at 20-22°C, and hardening at low temperatures. The data demonstrated that at low temperatures (-3 to 5°C) intensity of actual photosynthesis, when measured in terms of CO₂ uptake, decreases and leads to diminished or zero biomass gain. However, the potential rate of photosynthesis and the capacity for ATP synthesis by the chloroplasts and reducing equivalents remained at high levels. Hardening (7-10 days at -3° to 5°C) altered the temperature dependence of photosynthesis, shifting the maximal rate from 23-25°C to ca. 10°C. However, hardening also increased the strength of chlorophyll binding in the chlorophyll-protein-lipid complex, which was attributed to dehydration of the leaves. Figures 4; references 7: 5 Russian, 2 Western.

12172/9835
CSO: 1840/1097

UDC 631.417.2

GENERALIZED RESULTS OF AGROCHEMICAL ASSESSMENT OF SOVIET ARABLE LANDS FOR HUMUS CONTENT

Moscow AGROKHIMIYA in Russian No 1, Jan 86 (manuscript received 20 Nov 84) pp 80-84

[Article by L.M. Derzhavin, M.A. Florinskiy and A.V. Pavlikhina, TsINAO [expansion unknown, Moscow]

[Abstract] Arable lands in the USSR were studied for their humus content, and on the basis of the results classified into 6 categories, with the humus content ranging from less than 2% (Group I) to more than 10.0% (Group VI). As of January 1, 1983 22.4% of the arable land area in the USSR was ascertained to contain 2% humus or less, a figure ranging from 16.6% of the arable land area in Ukraine to 100% in the Central Asian republics and soil type for easy comprehension. Figures 2, references 3 (Russian).

12172/9835
CSO: 1840/431-B

UDC 547.466'583.5.057

SYNTHESIS OF DESAMINOHYDROXYTOCIN USING S-BENZAMIDOMETHYL PROTECTIVE GROUP FOR CYSTEINE AND β -MERCAPTOPROPIONIC ACID

Riga IZVESTIYA AKADEMII NAUK LATVIYSKOY SSR: SERIYA KHIMICHESKAYA
in Russian No 6, Nov-Dec 85 (manuscript received 20 Jun 85) pp 749-755

[Article by O.S. Papsuyevich, S.Ya. Miksta, G.I. Chipens, R.M. Strayuma and U.O. Kaley, Institute of Organic Synthesis, LatSSR Academy of Sciences, NPO "Biolar"]

[Abstract] Desaminohydroxytocin (I) is an active analogue of the neurohypophyseal hormone oxytocin with a wide range of application in medicine and potential use in animal husbandry and veterinary medicine. Synthesis methods were developed for I using a benzamidomethyl group (Bzm) for transient protection of the mercapto group in cysteine and β -mercaptopropionic acid. Protected I was obtained by condensation of two segments: Mpr(Bzm)-pentapeptide with a C-termination tripeptide Pro-Leu-Gly-NH₂. N-terminal segment was synthesized by gradual increase of the peptide chain. Another method was based on condensation of mixed anhydrides of N-terminal segment with C-terminal heptapeptide of oxytocin. Splitting the S-Bzm-group was performed either with iodine in methanol-DMFA mixture or with mercury acetate in DMFA-50% acetic acid mixture. The final product was purified by gel filtration on a Sephadex G-15 column yielding a product with uterotrophic activity of 690 MU/mg (rat, in vitro). References 13: 8 Russian, 5 Western.

7813/9835

CSO: 1840/387

COMPARATIVE ACTIVITIES OF TYPE I DNA TOPOISOMERASE OF WILD-TYPE AND
MUTANT DROSOPHILA SIMULANS EMBRYOS

Yerevan BIOLOGICHESKIY ZHURNAL ARMENII in Russian Vol 38, No 9, Sep 85
(manuscript received 26 Oct 84) pp 810-815

[Article by K.Zh. Akopyan, Institute of Experimental Biology,
Armenian SSR Academy of Sciences]

[Abstract] To further expand available information on enzymes involved in DNA metabolism and function, a comparative analysis was conducted on the relative activities of type I DNA topoisomerase isolated from 4-5 h old embryos of wild-type *Drosophila simulans* and a derived mutant line (*D. simulans vermillion*) noted for a high frequency of recombinant events. Analysis of densitograms obtained after separation of the enzyme in 1% agarose electrophoresis, using standard staining techniques and superhelical plasmid pBR 322 DNA as the substrate, demonstrated that the activity of type I DNA topoisomerase was almost twice as great in the mutant embryos as in the wild-type embryos. The significance of this observation was not discussed in the article. Figures 4; references 9 (Western).

12172/9835
CSO: 1840/394

BIOTECHNOLOGY

CEMA COLLABORATION IN BIOTECHNOLOGY

Moscow EKONOMICHESKAYA GAZETA in Russian No 10, Mar 86 p 23

[Tass report: "CEMA: Work of Standing Commissions"]

[Excerpts] The first meeting of the CEMA Standing Commission for Collaboration in the Field of Biotechnology was held in Moscow from 24-26 February. Delegations from the following CEMA member countries participated in it: Bulgaria, Hungary, the Socialist Republic of Vietnam, the German Democratic Republic, Cuba, Mongolia, Poland, Romania, the USSR, and Czechoslovakia.

Proceeding from the tasks determined by the CEMA session at the 41st (Extraordinary) Meeting, the commission prepared for presentation to the CEMA Executive Committee a position plan on the standing commission which determines the goals, basic tasks, functions, and powers directed at further developing all-around economic and scientific-technical collaboration between CEMA member countries in the field of biotechnology, and at realizing the Integrated Program of Scientific and Technical Progress of CEMA member countries up to the year 2000.

The commission is doing the coordinating and organizational work to resolve important intersectorial problems of multifaceted collaboration in the field of developing biotechnology, which embraces fundamental research, including genetic engineering, the formulation and creation of biotechnological production facilities, and the laboratory and industrial equipment necessary for this. The adoption of biotechnological advances in the economy of CEMA member countries will promote increased well-being and improved health of the population, more complete satisfaction of food needs, and protection of the environment.

Participants in the meeting prepared a plan of general accord on multifaceted collaboration in the field of biotechnology and confirmed the work plan of the commission for 1986-1987.

12255

CSO: 1840/1095

FUTURE OF BIOTECHNOLOGY

Moscow NOVOYE V ZHIZNI, NAUKE, TEKHNIKE: SERIYA TEKHNIKA No 8 TEKHNIKA, 1985 in Russian 1985 (signed to press 30 Jul 85) pp 17-28

[Excerpts] Biotechnology is the name given to the industrial technology used in obtaining valuable products from microorganisms, tissues, cells or the products of their vital activity. The modern conception of biotechnology encompasses genetic and cellular engineering, the objective of which is to alter the hereditary system of organisms in order to "control" the activities of living creatures. Biotechnology is closely connected with industrial microbiology and biochemistry. Many methods used in chemical technology are applied in biotechnology, especially during the final stages of the production process in which substances are separated from, for example, the biomass of microorganisms.

Improving protein and increasing the amount of it produced is one of the most important directions being taken in the development of biotechnology.

In the USSR, particular attention is focused on animal husbandry. An analysis conducted on the fodder balance indicates that there is an annual protein shortage of approximately 60million tons in animal husbandry. In addition, protein obtained from plants, which produce most of the types of protein fodder used, is poor in several valuable amino acids, especially lysine. Producing the protein contained in microorganisms is one of the possible ways to eliminate the protein deficiency in fodders. The source of the protein contained in microorganisms today is fodder yeast, a valuable protein and vitamin-rich fodder for all kinds of farm animals. Fodder protein yeast is obtained via aerobic cultivation of yeast organisms (unicellular molds) using carbohydrate media which are the products obtained from hydrolyzing plant raw material (yeast hydrolysis) or using mineral media containing purified liquid paraffins (protein-vitamin concentrate, PVC).

Any discussion of the new opportunities which biotechnology is opening up for agriculture would be incomplete without mentioning the most unusual microbiological preparation - "living" fertilizer. Only fertile soils can guarantee good harvests, of course. Soil fertility in turn depends to a large extent on the useful activities of the microorganisms living in the soil. Microorganisms improve the quality of the soil, accumulate nutrients and make plants less susceptible to illness. Microbes also increase the efficiency of common chemical fertilizers, thereby increasing

"use capacity". The conclusion is an easy one: the higher the amount of useful microorganisms in the soil, the more abundant the harvest. This is why the microbiological industry developed and mastered the production of "living" bacterial fertilizers containing symbiotic bacteria (nitrogen-fixing microorganisms). In symbiosis with podded plants, these bacteria assimilate nitrogen from the atmosphere (up to 200 kg/hectare).

Using fertilizers based on symbiotic bacteria increases grain harvests by 15 to 25 percent and soybean harvests (in the new areas it is cultivated) by up to 40 percent. In addition, the yield of podded plant greens increases, as does the content of protein in them. Large-scale work is currently underway to develop new kinds of bacterial preparations for enriching the soil, not just with nitrogen, but with other substances as well (phosphorus, for example).

The biotechnological products put out today are ethyl alcohol and so-called fermentation gas, which contains up to 70 percent methane. Studies are now underway to see whether or not it is possible to obtain substances resembling oil and ideal fuel--hydrogen--using microorganisms. Many countries view ethyl alcohol, which is obtained during the microbiological processing of plant raw material, as a substitute for liquid automobile fuel. Some time ago, this alcohol was two to three times more expensive than gas. Given the fact that the price for oil products has risen recently, manufacturing this alcohol has become economically justified.

It was proposed that up to 50 percent of all motor vehicles in the country be switched to gasohol by 1985, and the remaining cars to pure ethyl alcohol. There, alcohol is obtained from sugar-cane, cassava (an edible plant whose roots contain 20 to 40 percent starch) and waste material from the sugar manufacturing industry, among other things.

The achievements made in the steadily developing area of biotechnology are making it possible to successfully resolve many problems having to do with the public health service, providing it with highly effective substances such as vaccines, antibiotics, vitamins, amino acids, and interferon. Modern biotechnology not only uses natural processes, it also creates new ones. A method is now being developed for cultivating the isolated tissues, cells and protoplasts (bacterial cells which do not have membranes) of plants and mammals, for example. This direction of biotechnology is called cellular engineering. Today, medicinal substances can be obtained without having to grow an entire plant. All that must be done is to cultivate those cells which are "responsible" for these substances. Examples of this are not hard to find.

Not only the necessary quantity of biomass can be cultivated from a separate cell, however. The modern plant cell culture technique makes it possible to convert a simple cell into an actual plant which will blossom and bear fruit. In addition, the plant "is born" healthy, without any viruses or pathogenic microorganisms. This clonal micro-reproduction shows promise in growing valuable, highly productive plants. More than 60 thousand sprout offspring can be obtained from the top of an apple tree.

Unfortunately, not all plants lend themselves to this kind of reproduction.

Effectiveness increases considerably when microcomputers are used in managing biotechnological processes in enterprises of the microbiological industry. These computers automate the process by which data are collected from sensors for the parameters of the process. These data are processed in real time, and control signals are sent to the final control element of the fermenter (working programs for creating an Automated System for Controlling Technological Processes based on microprocessor technology have been approved for the industry). Specialized control complexes are currently operating at the fermentation ("Biocycle") and concentration (SPC - Separation Process Control) stages in microbiological industrial plants. Pilot tests conducted on the "Biocycle" and SPC complexes at the Berdsk Chemical Plant showed that 800 thousand rubles can be saved annually through their realization.

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13126/9835

CSO: 1840/393

SELECTED SYNOPSIS OF ARTICLE IN 'JOURNAL OF THE BELORUSSIAN SSR ACADEMY
OF SCIENCES: BIOLOGICAL SCIENCES SERIES' SEP-OCT 1985

Minsk VESTSI AKADEMII NAVUK BSSR: SERYYA BIYALAHICHNYKH NAVUK in Russian
No 5, Sep-Oct 85 p 125

UDC 579. 6+663.11

FORMATION OF BIOMASS AND PROTEIN BY A TWO-STAGE CONTINUOUS CULTURE OF
P. TERLIKOWSKI BIM G-123 GROWN ON A MEDIUM CONSISTING OF POTATO CELL SAP AND
POTATO PULP

[Synopsis of article by I.V. Stakheyev, L.A. Orlova and T.A. Grinevich,
pp 67-71]

[Text] Formation of biomass and protein in the course of two-stage continuous growth of the fungus P. terlikowski on a heterogeneous medium consisting of potato cell sap (3 percent SV [not further identified]) and was investigated at two dilution rates: variant 1-- $D=0.20-0.066/\text{hr}$, variant 2-- $0.20-0.10/\text{hr}$. Variant 1 was found to be the most optimum in relation to synthesis of biomass and protein. Continuous growth at the studied flow rates makes it possible to obtain protein-enriched carbohydrate feed. The concentration of crude protein in it (29.0-39.6) is 3.4-6.4 times higher than in the initial dry pulp (5.5-8.5 percent). 4 tables, 5 bibliographic references.

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biyalahichnykh navuk, 1985

11004/9835
CSO: 1840/413

ENVIRONMENT

TRACE POLLUTANTS IN SNOW

Moscow MOSKOVSKAYA PRAVDA in Russian 8 Mar 86 p 3

[Unattributed article: "Snowflake With a Major Plan"]

[Text] 3 March, Monday--Successful results have been achieved by the experimental adoption of a new method to control pollution of the environment in which snow plays an important role.

Scientists scarcely agree with the proverb about the uselessness of last year's snow. For them various data about the snow of past years are very important. Comparative data have great significance in a new method developed by researchers of the Institute of Applied Geophysics.

The concept of "white snow" is perceived as a standard of purity. And indeed, snow gives a special purity and brightness to everything--streets, parks, forests. Snow itself has always interested scientists. Its miniature fragile "lattice" with a weight measured in the tenths of milligrams is extremely interesting. Several dozen different "structures" of various "snow forms" are classified according to types and classes.

The light snowflake is weightless, but an innumerable multitude of them cover the earth each year with a powerful, weighty cover. It is sufficient to say that the winter cover is measured in the thousands of billions of tons. During all the cold months of the year the greater portion of the territory of our country is thickly wrapped in the white cover. For scientists this is an excellent screen which makes it possible to see against a background of crystal white the smallest traces of pollutants coming from enterprises, transportation, and other sources.

An authors' group of the Institute of Applied Physics which included Deputy Director Candidate of Technical Sciences I. M. Nazarov, laboratory head Dr of Physical-Mathematical Sciences Sh. D. Fridman, and Chief Engineer V. N. Vasilenko, developed an interesting method. After many years of experiments and tests it has now become widespread.

In our country several thousand meteorological stations record a great variety of parameters of the air, water, and snow. The height and density of the snow cover are usually measured. In the new method, a chemical analysis is done as well. Studying snow makes it possible to determine the nature of pollutants and trace their sources fairly simply. For this, it is enough to do such

"tests" for analysis only once in a season, in order, after collecting all the data from various meteorological stations, to obtain a fairly extensive "picture" of the state of the environment. The snow-white winter covering provides a particularly graphic "demonstration" of various types of pollutants.

Calculations show that this method is making it possible to replace other, more expensive ways of controlling the state of the environment. So the economic effect from adopting it amounts to an impressive sum, over a million rubles per year.

There are now about a thousand meteorological stations in various regions of the country using this method. The data thus obtained provide a picture of all forms of pollution for a vast territory--over 18 million square kilometers. And precisely organized control and rapid detection of sources of pollution are a good base for practical measures to ensure purity of the environment. Using the "snow method," precise pictures of the pollution of various territories are compiled, showing where, which industrial center, what forms of business activity, and which people are responsible for damaging the purity of the biosphere.

12255

CSO: 1840/1098

POLLUTION OF BRATSK ENVIRONMENT BY CHLORINE PLANT

Moscow IZVESTIYA in Russian 16 Mar 86 p 2

[Article by G. Alimov under the "Fact from a Report" rubric: "Heavy Clouds, Paper Precipitation..."; text within slantlines printed boldface]

[Text] /The RSFSR Ministry of Health has ordered the Irkutsk Oblast Health Department to gradually shut down operation of shops and areas at the Bratsk Chlorine Plant./

Before me lie materials from the past 3 years. Reports, correspondence, appeals. The same statement appears in every document: The Bratsk Lumber Complex's Chlorine Plant is a major source of air pollution. It never changes, just as the situation at the plant never changes. Twenty-one emergencies were recorded from 1983 to 1985.

According to RSFSR Ministry of Health Epidemiology Department personnel, the Bratsk Lumber Complex management is not doing enough to prevent accidents. The Bratsk Health Department has raised this question seven (!) times for discussion in Party and Soviet bodies. Decisions were made. But they have not been fully carried out.

In November 1985, the RSFSR Ministry of Health received a collective complaint from workers in an auto-repair plant near the chlorine plant. A letter was sent to V. Chuyko, deputy minister of the Ministry of Timber, Pulp and Paper, and Wood Processing. There is still no answer.

/Inquiry by the RSFSR Ministry of Health Epidemiology Administration./

The overall health situation at the Bratsk Lumber Complex is unsatisfactory. Foul-smelling substances from No. 1 and No. 2 Cellulose Plants still enter the atmosphere untreated. The maximum dust and solid fluoride content in the Bratsk air basin exceeds established hygiene standards, sometimes considerably. Air pollution has a harmful effect on the populace's health and causes increased disease in the upper respiratory tracts.

12809/9835
CSO: 1840/1132

UDC 577.4:502.7

MODERN ECOLOGY--SCIENTIFIC FOUNDATION FOR BIOSPHERIC PROTECTION

Ashkhabad IZVESTIYA AKADEMII NAUK TURKMENSKOY SSR. SERIYA BIOLOGICHESKIKH NAUK in Russian No 2, 1985 (manuscript received 26 Aug 84) pp 26-32

[Article by A.O. Tashliyev, Institute of Zoology, Turkmen SSR Academy of Sciences]

[Abstract] A discussion is provided of the philosophical foundations provided by the works of Marx, Engels and Lenin for scientific studies, in particular as they related philosophy to the natural sciences and were the first to recognize the fact that in the present state of human development an equilibrium exists between these two spheres of human knowledge. It is in the light of their teachings that the modern threat to global ecological balance can be properly appreciated and measures taken to protect the biosphere. Details are presented on some of the current ecological challenges that face scientists concerned with environmental protection, with the recognition that only full appreciation and implementation of ecologically sound programs to redirect human activity can alleviate and improve the situation. In the final analysis, successful nature protection requires preservation and enrichment of existing natural resources. References 7 (Russian).

12172/9835

CSO: 1840/1101

EPIDEMIOLOGY

BRIEF

PARASITOLOGY COLLECTION PUBLISHED--The Metsniyereba Publishing House recently published a joint collection of scientific works--the results of many years of work from parasitologists of the Caucasus and foreign specialists. It included materials devoted to questions of the systematics, faunistics, ecology, and biochemistry of parasites which cause diseases in animals and birds, and also preventive measures directed at fighting diseases caused by them. "Parasitology, which is the scientific foundation for developing and implementing effective measures to fight parasitic diseases, now faces urgent problems," said the editor of the collection, Corresponding Member of Georgian Academy of Sciences Boris Kurashvili. "Based on research carried out in individual regional zones, reservoirs, and major livestock breeding farms, specialists are not only working out preventive measures, but also are using parasites in biological combat against agricultural and other pests. In the successful resolution of many scientific problems facing parasitologists in the Caucasus, it is very important to expand contacts and information exchange. The Caucasus is a unified, integral geographical region, a multitude of general local problems of parasitology come from here. These contacts, based on joint developments of topics, are bringing together specialists of the republic with colleagues from Czechoslovakia, Poland, Bulgaria, and other countries, whose works are included in the new collection." [Text] [By Nestan Alavidze] [Tbilisi ZARYA VOSTOKA in Russian 18 Jan 86 p 4] 12255

/9835

CSO: 1840/1095

UDC 576.895.75

ECOLOGY OF GAMASID MITES IN AREAS AFFECTED BY KARAKUM CANAL IN
SOUTHEASTERN TURKMENISTAN

Ashkhabad IZVESTIYA AKADEMII NAUK TURKMENSKOY SSR. SERIYA BIOLOGICHESKIKH
NAUK in Russian No 2, 1985 (manuscript received 22 Dec 83) pp 57-59

[Article by M.A. Meledzhayeva, Institute of Zoology, Turkmen SSR
Academy of Sciences]

[Abstract] Ten species of small mammals in the area of the Karakum Canal in Southeastern Turkmenistan were examined for gamasid mites, to determine the effects of the canal on the gamasids. Evaluation of the 21 species of gamasids that were collected demonstrated that *H. meridianus* dominated on the greater gerbil, *A. longipes* on the red-tailed and Southern gerbil, and *A. semidesetus* on the hares. Infestation of the small mammals was highest in the spring, during which time the greatest variety of gamasids was identified. In the drylands in the vicinity of the Mary hydroelectric power station the red-tailed and Southern gerbils were infested with *A. glasgowi*, which usually predominates in wetlands. Their infestation was apparently favored by the climatic conditions in the burrows in that location. References 4 (Russian).

12172/9835

CSO: 1840/1101

ANTARCTIC KRILL AS PROTEIN SOURCE

Moscow VESTNIK AKADEMII NAUK SSSR in Russian No 1, Jan 86 pp 73-82

[Article by S.V. Rogozhin, doctor of chemical sciences]

[Abstract] A review is provided of Soviet efforts in harvesting the Antarctic krill as a source of protein, which has resulted in the development of processes which allows the utilization of 80-85% of krill protein, of which 50-55% are used for highly nutrient food products and 20-25% for feed. In addition, some 70% of the lipids are also utilized, valuable enzyme preparations can be recovered, and the exoskeleton serves as a source of chitin and chitosan. Japanese investigators have equated the nutritional value of krill protein with that of egg albumin and, because of its high concentrations of essential amino acids, it forms an excellent supplement for foods. Chitin and chitosan derived from krill have also found many industrial applications, including water treatment (flocculants), medical technology (hemostatics, anticoagulants, antineoplastics), textile industry (fillers, antistatic agents, adhesives), and biotechnology (adsorbents of enzyme and cell immobilization, polyampholytes). Efforts at further utilization of this marine resource are being continued and new uses are being found. Successful completion of the krill utilization program will depend on close coordination of research and applied laboratories.

12172/9835

CSO: 1840/422

GENETICS

SELECTED SYNOPSSES OF ARTICLES IN 'JOURNAL OF THE BELORUSSIAN SSR ACADEMY OF SCIENCES: BIOLOGICAL SCIENCES SERIES', NOV-DEC 1985

Minsk VESTSI AKADEMII NAVUK BSSR: SERYYA BIYALAHICHNYKH NAVUK in Russian
No 6, Nov-Dec 85 pp 123, 125, 126

UDC 576.312.35:633.1

USE OF ALLOPLASMIC RYE IN THE ACQUISITION OF TETRAPLOID FORMS OF TRITICALE

[Synopsis of article by V. Y. Bormotov, A. M. Shcherbakova, S. Ye. Semerikhina, N. I. Dubovets and L. A. Solovey, pp 28-31]

[Text] The results of hybridizing hexaploid forms of triticale with alloplasmic rye are presented. It is demonstrated that fertile tetraploid plants, among which stabilization of tetraploid forms of triticale is possible, are isolated in the progeny of ABRR hybrids. 3 tables, 8 bibliographic references.

UDC 581.19:631.11.633.16

ASSESSMENT OF MUTANTS AND THEIR HYBRIDS FOR HOMEOSTASIS IN BARLEY ON THE BASIS OF PEROXIDASE ACTIVITY

[Synopsis of article by V. G. Volodin, Ye. A. Kipnis, E. I. Lisovskaya and N. M. Yermishina, pp 31-35]

[Text] The peroxidase activity index, which is employed as a test for homeostatic and adaptive properties, was used as the basis for conducting selection among radiation-induced mutants of barley and hybrids obtained on their basis. A number of highly homeostatic forms were isolated and included in a subsequent selection process. 4 tables, 7 bibliographic references.

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11004

CSO: 1840/414

UDC 575.11.37

POLYMORPHISM IN DNA RESTRICTION FRAGMENTS IN WAXY-GENE REGION OF BARLEY

Moscow DOKLADY AKADEMII NAUK SSSR in Russian Vol 286, No 5, Feb 86
(manuscript received 5 Sep 85) pp 1255-1257

[Article by Ye.V. Ananyev, S.S. Bochkanov, A.I. Chernyshev, V.D. Filatov and A.A. Sozinov, academician, Ukrainian SSR Academy of Sciences, Institute of General Genetics imeni N.I. Vavilov, USSR Academy of Sciences, Moscow]

[Abstract] A study was conducted on the length of DNA restriction fragments in several varieties of barley, using the region of the waxy gene, to further define the use of such criteria as molecular markers useful in plant genetics and breeding. Using a combination of EcoRI restriction, Southern blot technique and polyacrylamide gel electrophoresis for DNA fragment analysis for Donetsk-4, Oksamyt, Nutans-970, Nutans-45. Nutans-4353 and Frandeo barley demonstrated patterns with different mobilities, i.e., fragment size, for the waxy-gene region. In one case (Nutans-45), two bands were identified. All strains, however, were normal for the waxy trait, indicating that the barley genome is undergoing constant rearrangement. These observations suggest that similar polymorphism applies, in all likelihood, to other nucleotide sequences in the barley genome. Figures 2; references 12: 2 Russian, 10 Western.

12172/9835
CSO: 1840/425

HUMAN FACTORS

UDC: 007.51

MENTAL SELF-REGULATION AS FACTOR OF INCREASING RELIABILITY OF POWER SYSTEM OPERATORS

Kiev ENERGETIKA I ELEKTRIFIKATSIYA in Russian No 4, Oct-Dec 85, pp 47-49

[Article by L.A. Letikhova, candidate of psychological sciences, Kiev Scientific Research Institute of Psychology, Ukrainian SSR]

[Abstract] Mental self-regulation, based on self-suggestion, allows activation of mental processes to achieve desired behaviors. Mastery of the skills of mental self-regulation can significantly smooth interactions among teams at power plants and improve their working effectiveness. All power-plant workers should be included in a program of self-training to achieve the benefits of mental self-regulation. Such programs have been developed at the Ukrainian Scientific Research Institute of Psychology and are successfully used in psychological training of specialists in various professions. Training in mental self-regulation should involve all power plant administrative workers as well as production workers. Drills on mental self-regulation can be included in courses intended to improve the qualifications of administrators and workers. References 4 (Russian).

6508/9835
CSO: 1840/349

UDC: 007.51

BIOENERGETIC REHABILITATION IN POWER INDUSTRY

Kiev ENERGETIKA I ELEKTRIFIKATSIYA in Russian No 4, Oct-Dec 85, pp 45-47

[Article by V.M. Inyushin, doctor of biological sciences, Kazakh State University]

[Abstract] Bioenergetic rehabilitation is a new means for restoring bioenergetic structures. A number of methods such as ionization of the air, laser activation of the blood and of biologically-active points and the use of activated solutions of various substances have been developed

for bioenergetic rehabilitation of people working with equipment. The theoretical foundation of all these measures is the study of the bioenergetic structures, the basis of which is the so-called bioplasma, the fifth state of matter or organized plasma. The bioplasma is a system of elementary particles creating a specific organization in membrane systems, the cells of living organisms. The processes most important for the human body, such as accumulation of energy, its migration and control of bioenergetic processes, occur in the bioplasma, which is saturated with virtual photons. Bioenergetic destruction is caused by the effects of noise in the technosphere at the photon level. Virtual photon structures are broken down by such factors as electromagnetic and temperature fields, resulting in the emission of ordinary photons which can be recorded by physical detectors. The authors have developed a method of light injections using laser radiation in the red visible light range. Laser activation of operators at both thermal and nuclear power plants can be of tremendous significance for supplementation of their bioenergetic resources. The author notes that it is not possible in the article to discuss all methods of bioenergetic rehabilitation in detail, but laser activation by such methods as laser treatment of the blood through the walls of the vessels and the use of activated aqueous solutions are mentioned. References 2 (Russian).

6508/9835
CSO: 1840/349

IMMUNOLOGY

UDC 616.348-003.12-097

STATE OF T- AND B-IMMUNITY SYSTEM IN CHRONIC ENTEROCOLITIS PATIENTS WORKING WITH CHLORO- AND PHOSPHOROORGANIC PESTICIDES

Tashkent MEDITSINSKIY ZHURNAL UZBEKISTANA in Russian No 6, Jun 85
(manuscript received 13 Jan 84) pp 41-43

[Article by D.T. Umarova, Department of Microbiology, Immunology and Virology Principles, Central Asian Medical Pediatric Institute]

[Abstract] Chronic enterocolitis patients aged 22-55 years were evaluated, all of whom had been exposed to chloro- and phosphoroorganic pesticides (COP and POP respectively) on their jobs. The results showed that patients exposed to COP and POP had decreased content of T-rosette forming lymphocytes (absolute and relative levels), showed blast-formation of lymphocytes, higher levels of IgG and IgA; their IgM level and the percent of B-rosette forming lymphocytes did not change but their absolute level dropped significantly. Thus it was shown that chronic enterocolitis patients who were exposed to COP and POP showed significant depression of T- and B-immunity system. References 9: 7 Russian, 2 Western.

7813/9835
CSO: 1840/1082

UDC 612.017.1:612.6.06+0.15.371

HIGHLY IMMUNOGENIC SYNTHETIC POLYION-BASED ARTIFICIAL ANTIGENS AND VACCINES

Moscow VESTNIK AKADEMII NAUK SSSR in Russian No 2, Feb 86 pp 45-57

[Article by R.V. Petrov, academician, and R.M. Khaifov, doctor of medical sciences]

[Abstract] A brief review is given of the problems encountered in attempting to raise an adequate antibody response in low responders through the use of synthetic polyions for the preparation of conjugated antigens and vaccines.

Since the Ir genes act via the T cells, the conjugated antigens and vaccines prepared in this manner are intended to essentially bypass the T cell helper signal. Among the most promising synthetic polyelectrolytes used to date have been polyacrylic acid, poly-4-vinylpyridine, poly-2-methyl-5-vinylpyridine, poly-4-vinyl-N-ethylpyridinium bromide, as well as their various copolymers with, for example, N-vinylpyrrolidone. Injection of such polyions into rats and mice has resulted in a four- to five-fold increase in humoral antibody production to a variety of soluble and particulate antigens. The effects of the polymers have been determined not to be due to an adjuvant effect, rather to direct membrane effects which lead to antigen-dependent differentiation and proliferation of lymphocytes. The clinical implications are self-evident: alpha-fetoprotein, a weak immunogen when injected alone, becomes a potent immunogen when administered as a conjugate with a synthetic polyion. Figures 6; references 11 (Russian).

12172/9835
CSO: 1840/424

UDC 616-006.6-92.4/9

PROLIFERATE ACTIVITY OF LYMPHOID TISSUES IN MICE IMMUNIZED WITH TUMOR VACCINES

Kiev DOKLADY AKADEMII NAUK UKRAINSKOY SSR, SERIYA B: GEOLOGICHESKIYE, KHIMICHESKIYE I BIOLOGICHESKIYE NAUKI in Russian No 1, Jan 86
(manuscript received 27 May 85) pp 75-77

[Article by D.G. Zatula, corresponding member, Ukrainian SSR Academy of Sciences, V.L. Bikhunov, V.M. Yudin and A.K. Zavalnyuk, Institute of Oncological Problems, Ukrainian SSR Academy of Sciences, Kiev]

[Abstract] A/Sn mice were employed in a study designed to correlate the effects of immunization with various tumor vaccines on lymphoid tissue proliferative activity and survival times after tumor cell injection. The vaccines were prepared from native and lyophilized syngeneic tumor ON-2 cells treated with Bac. mesentericus AB-56 culture filtrate and administered once or three times (at 3 day intervals) intraperitoneally. The latter schedule was more effective in inducing a long-term immunity and was accompanied by varying patterns of cellular proliferation in the lymphoid tissues (thymus, lymph nodes, spleen) as measured by ^3H -thymidine uptake. The average survival time of animals immunized with the native vaccine was 56.4 days after an intraperitoneal challenge with 10^5 tumor cells, with 60% of the mice remaining tumor free. The corresponding figures for mice immunized with the lyophilized vaccine were 48.3 days and 68.1%. The control data were 24.5 days and 0%. Analysis of the proliferation and survival data demonstrated a high degree of correlation, indicating--on the basis of comparison with an ineffective vaccine--that ^3H -thymidine uptake provides a reliable indication of vaccine potency. Figures 1; references 11: 9 Russian, 2 Western.

12172/9835
CSO: 1840/429-B

EFFECT OF INTENSIVE LASER IRRADIATION ON LIPID PEROXIDATION IN RETINA

Minsk DOKLADY AKADEMII NAUK BSSR in Russian Vol 30, No 2, 1986 (signed to press 19 Mar 85) pp 180-183

[Article by G.V. Lyakhnovich, T.M. Guseynov, G.I. Zheltov, V.N. Glazkov, A.S. Naumovich, S.V. Konev, and I.D. Volotovskiy, Institute of Photobiology of the Belorussian SSR Academy of Sciences, the Institute of Physics of the Azerbaijan SSR Academy of Sciences, the Institute of Physics of the Belorussian SSR Academy of Sciences and the Minsk State Medical Institute. Article presented by Academician of the Belorussian SSR Academy of Sciences A.S. Vecher]

[Text] It is known that intensive exposure to visible and ultraviolet light can damage the photoreceptor apparatus of the eye by intensification of lipid peroxidation processes, can damage the cellular membranes and membrane proteins, can cause oxidation of the SH-group of rhodopsin, and can cause loss of activity of a number of enzyme systems [1].

Recently, in medicine and technology, greater application has been found for optical quantum generators which have great power, monochromaticity and directivity of irradiation. However, work with such sources of light is accompanied by an increase in danger for operating personnel. In this regard, intensive studies have been conducted on the influence of laser irradiation on the organism as a whole and on the most vulnerable part--the photoreceptor apparatus of the eye [2]. However, despite studies on the mechanisms of damage to the photoreceptor structures by the action of laser irradiation [3], this particular question is far from being resolved. In this work, we undertook a study on the effect of intensive laser irradiation on the kinetics of lipid peroxidation (LP) in the retina in in vivo and in vitro conditions, and also considered the possible influence on these processes of vitamin E and selenium, which have endogenous antioxidants and play an active part in the regulation of the oxidizing processes in membranes [4,5].

Tests in vitro were conducted on preparations of bovine eyes, obtained by transverse dissection of the eyeball through the vitreous body in a plane perpendicular to the optical axes of the eye. The retina remained in the same mechanically unimpaired state as in the intact eye, attached to the back of the eyeball. Irradiation of the retina by laser was accomplished through the vitreous body. The preparations were irradiated with impulse laser

irradiation with a wave length of 694 nm, an impulse length of 0.5 ms and an average density of power of $3 \cdot 10^3 \text{ W} \cdot \text{cm}^{-2}$. The irradiated parts of the retina were extracted and homogenates were obtained.

In vivo studies were conducted on gray chinchila rabbits weighing up to 3 kg. A selenium compound ($\text{Na}_2 \text{SeO}_3$) was administered subcutaneously at 2 and 48 hours prior to the time of irradiation of the animals at a dose of 0.1 and 0.5 mg/kg of weight (in scale of selenium). Vitamin E (alpha-tocopherolacetate) was administered intramuscularly at 18 hours based on a calculation of 50 mg/kg of body weight. We conducted irradiation of the back of the eye of the animals through the pupil with 30 laser impulses with a length of 1 ms and an average estimated density of power on the retina of approximately $10^3 \text{ W} \cdot \text{cm}^{-2}$ ($\lambda = 694 \text{ nm}$). The eye was extracted and maintained in darkness on ice for 2 hours, after which time the retina was removed and homogenized. Homogenates were prepared in a vitreous homogenator on ice. The concentration of protein in the preparations was determined according to a modified method of Loury [6]. For study of the kinetics of accumulation of products of lipid peroxidation (TBK-active products), homogenates were incubated in an incubator at 37°C and with a continuous exhaust of air at a rate of 2-3 l/h. After equal intervals of time, we extracted from the homogenates aliquots in which the output of TBK-active products was determined [7].

Previously, in model experiments conducted in vitro, we found that exposure of eye preparations to laser impulses (see methods) resulted in the growth of rapid accumulation of TBK-active products in the retina (see figure 1).

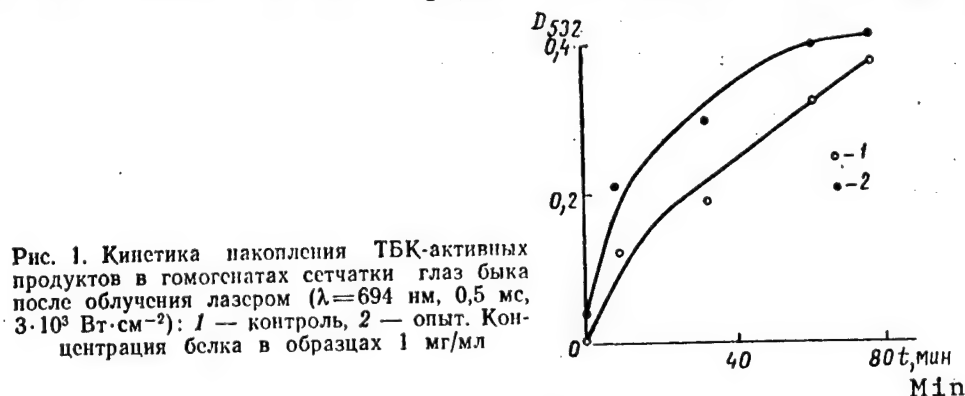


Figure 1. Kinetics of accumulation of TBK-active products in homogenates of bull retina after laser irradiation ($\lambda = 694 \text{ nm}$, 0.5 ms , $3 \cdot 10^3 \text{ W} \cdot \text{cm}^{-2}$); 1 is the control, 2 is the test. Protein concentration in the specimens was 1 mg/ml.

These experiments, conducted in vivo, are presented in figure 2. From the drawing, it is evident that laser irradiation stimulates the process of lipid peroxidation in the retina of rabbits. The preliminary administration of vitamin E and a selenium compound to the animal inhibits the prooxidant effect of laser radiation on the photoreceptor apparatus.

As is known, lipids in the retina are readily subject to peroxidation as a consequence of a high content of polyunsaturated fatty acids [8]. Inasmuch as vitamin E is an effective inhibitor of lipid peroxidation processes [5,8], its

introduction in an organism should coincide with a decrease in the accumulation of TBK products. Consequently, if curves 1 and 3 (figure 2,a) are compared then it is evident that, given parenteral administration of vitamin E, the intensity of lipid peroxidation processes in the retina is decreased. Vitamin E also suppresses the processes of lipid peroxidation, induced by the laser, which is clearly seen when comparing curves 2 and 4 (figure 2,a).

Thus, laser radiation stimulates the processes of peroxidation in the retina in vivo, and vitamin E lowers the effect of stimulation. The protective effect of vitamin E on the retina allows us to postulate that laser radiation assumes the role of one of the inhibitors of the free-radical process of lipid peroxidation.

The mechanism of action of another inhibitor--selenium, evidently is the same. Selenium is present in the retina of animals and enters in the makeup of the reduction-oxidation enzyme, glutathione peroxidase (KF 1.11.1.9), which participates in the destruction of peroxides of various sources. It is known that there is a direct correlational relationship between dietary selenium and the activity of glutathione peroxidase [9]. The administration of selenium in an organism leads to the synthesis in the liver of new molecules of glutathione peroxidase which are carried in the circulation, during which time maximum activity of the enzyme in the tissues is observed 2-3 days after administration of selenium [10]. Thus, selenium in principle is able, with some time delay, to participate in the regulatory processes of lipid peroxidation. However, recently, scientists detected that, given initiation of lipid peroxidation in the paraqueduct and ductus of rats, preliminary administration of selenium (even for 2 hours prior to effect) lowers the intensity of the processes of accumulation of peroxides [9]. Therefore, despite the fact that selenium is able to effect lipid peroxidation by means of inductive synthesis of new molecules of glutathione peroxidase 2-3 days after administration, the question of the presence of other mechanisms for regulation of lipid peroxidation by selenium remains open.

To demarcate the antioxidation action of selenium, induced by its inclusion in the makeup of glutathione peroxidase from other possible mechanisms, we administered sodium selenite to rabbits at 2 and 48 hours before laser irradiation. The results of the experiments are presented in figure 2,b,c. From figure 2,b, it is obvious that the administration of sodium selenite (0.5 mg/kg of weight) to rabbits at 48 hours prior to irradiation eliminates the stimulatory effect of the laser irradiation on the processes of lipid peroxidation in the retina only partially (curve 4 is positioned higher than curve 1), which may be related to the administration of sodium selenite to an organism.

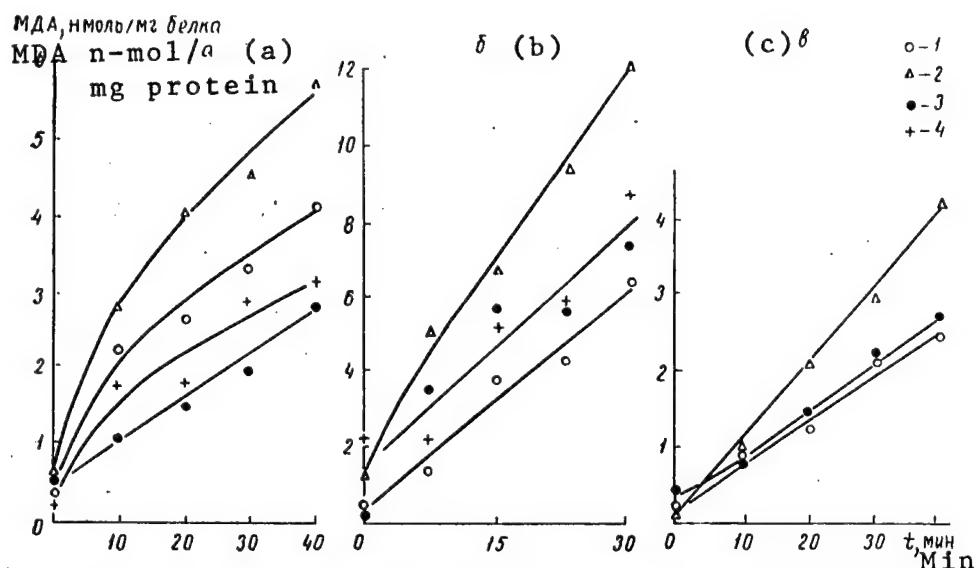


Рис. 2. Кинетика накопления ТБК-активных продуктов в гомогенатах сетчатки после облучения глаз кроликов лазером ($\lambda=694$ нм, 1 мс, 10^3 Вт·см $^{-2}$). Для всех рисунков: 1 — контроль, 2 — облучение. а) 3 — введение витамина Е (50 мг/кг), 4 — облучение на фоне введения витамина Е; б) 3 — введение селенита натрия (0,5 мг/кг за 48 ч до облучения), 4 — облучение на фоне введения селенита натрия; в) 3 — облучение на фоне введения селенита натрия (0,1 мг/кг за 2 ч до облучения). По оси абсцисс — время инкубации, по оси ординат — содержание МДА

Figure 2. The kinetics of accumulation of TBK-active products in retina homogenates after irradiation of rabbit eyes by laser ($\lambda = 694$ nm, 1 ms, 10^3 W. cm $^{-2}$). For all drawings: 1 is the control, 2 is irradiation. a) 3 is administration of vitamin E (50 mg/kg), 4 is irradiation against a background of vitamin E administration; b) 3 is administration of sodium selenite (0.5 mg/kg for 48 hours prior to irradiation), 4 is irradiation against a background of administration of sodium selenite; c) 3 is irradiation against a background of sodium selenite administration (0.1 mg/kg for 2 hours prior to irradiation). The x-coordinate is the incubation time, the y-coordinate is the content of MDA.

We should note that, according to data in the literature, the dose relationship to selenium is variable for different forms of animals. Thus, in frogs it was shown to stimulate lipid peroxidation in the retina and liver to a high degree (more than 0.5 mg/kg) and inhibition was demonstrated with lower (0.1-0.5 mg/kg) doses of selenium [11]. In our studies, the optimal effect (inhibition of stimulation of lipid peroxidation by the laser and the absence of activation of lipid peroxidation in the control) of selenium was shown when the animal was given a dose of 0.1 mg/kg for 48 hours before irradiation.

In another series of experiments, the kinetics of accumulation of lipid peroxidation products in the retina were studied 2 hours after administration of selenium to rabbits. From figure 2,c it is evident that in these conditions, laser radiation, for all intents and purposes, does not lead to stimulation of the lipid peroxidation processes. Total inhibition by selenium of the stimulatory effect of laser radiation on lipid peroxidation attests to the existence, in addition to the formation of glutathione peroxidases, of some selenium-dependent mechanisms of lipid peroxidation in the retina.

Actually, recently discovered information supports this point of view. For example, with the administration of selenium to rats, a decrease in the quantity of ethane in exhaled air has been detected (which speaks to a decrease in the level of lipid peroxidation), despite the fact that the activity of glutathione peroxidase remains at the previous level 10 hours after administration [10]. We should also add that glutathione peroxidase is not the only selenium-containing protein in the cells of mammals [12]. In addition to selenium, other proteins may be part of its composition or complexed with other compounds which have an effect on the processes of lipid peroxidation in the organism.

Thus, results of this study on the kinetics of accumulation of TBK-products in the retina, given impulse laser exposure and the influence of antioxidants on this process, allow us to conclude that damage to the retina caused by laser radiation is associated with the occurrence of lipid peroxidation processes in the lipid components of its membrane systems.

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CSO: 1840/438

MEDICINE

ACCURACY OF COMPUTER MEDICAL DIAGNOSIS IN KUYBYSHEV

Moscow TRUD in Russian 14 Feb 86 p 4

[Article by A. Perchikov and N. Chaykovskiy. Kuybyshev, under the "Experiment" rubric; "The Computer Offers a Diagnosis; the Computer Accepts Patients"]

[Text] An effective method of pre-physician computerized diagnosis has been developed at the Propedeutic Department of the Kuybyshev Medical Institute.

A copy of a formalized questionnaire was placed on the table before each of us. and it was suggested that we fill it out.

"Imagine," they told us, "that you are being examined by several doctors at once. But all the questions which they would have asked you have already been formulated in the questionnaire given to you, and it is necessary only to answer them with a simple "yes" or "no".

We counted 48 questions on the questionnaire--about family position, degree of addiction to smoking and alcohol, psychological-emotional stresses at home and at work, illnesses which we had had previously and which we had now, and whether we feel such and such symptoms and functional disorders. To answer them did not involve great effort, after which the questionnaires with the answers were put in a computer before our eyes. After perhaps 20 seconds, the computer issued encoded answers with the diagnosis which would be understandable only to the specialist physician.

Professor Veniamin Nikolayevich Fatenkov, chief of the Propedeutics Therapy Department, is just now commenting on the described procedure. "A program is put in the computer 'memory' which we formulated on the basis of the analysis of thousands of medical histories. So that if your 'yes' and 'no' on the questionnaire are truthful, the physicians in the polyclinic will undoubtedly confirm the diagnosis given by the computer.

Recently, specialists of Professor Fatenkov's clinic together with workers of the computer center of the Kuybyshev Zavod imeni Maslennikov Production Association conducted a detailed examination, by means of a formal questionnaire and a computer, of about 2,000 workers and engineering and technical personnel. During a control physician-medical examination of these people in the medical-public health department of the association, the correctness of the computer diagnosis was confirmed 95 percent of the time. This year, it is planned to examine all workers here by the new method.

12410

CSO: 1840/385

BRIEF

GENETICS--Ashkhabad--The Center for Medical-Genetic Consultation, organized in facilities of the Turkmen Scientific Research Institute of Mother and Child Health, helps the physician to find out much new about the nature of different hereditary illnesses and to give timely warning to a threatening disease. The new center is the 10th specialized division of the institute that has been called on to work out the fundamentals for organization of medical assistance to children and mothers in a hot climate. [Text]
[Minsk SELSKAYA GAZETA in Russian 11 Feb 86 p 1] 6521/9835

CSO: 1840/1086

ADVANCES IN EYE DISEASE DIAGNOSIS

Moscow PRAVDA in Russian 18 Feb 86 p 3

[Article by N. Korshunova]

[Abstract] The eye presents a window to the body as a whole through which physicians can diagnose many physical conditions. However, significant progress has also been made in the management of eye diseases themselves, as explained by Professor A. Nesterov, State Prize laureate, corresponding member of the USSR Academy of Medical Sciences, and head of the Chair of Eye Diseases of the 2nd Moscow Medical Institute. Nesterov listed some of the recent advances in the management of glaucoma, myopia and other conditions, and pointed out the importance of cooperation with other research and technical establishments. For example, cooperation between the Chair of Eye Diseases and the Scientific Research Institute of Medical Instrumentation led to the development of an apparatus for the study of circulatory physiology in the eye, as well as to a diagnostic table for the analysis of disease-risk factors based on computer technology. In conjunction with the All-Union Scientific Research Institute of Medical Technology an instrument has been designed and manufactured which allows for treatment of eye diseases with infrasound. These are but an inkling to the effort that is being made to advance ophthalmology.

12172/9835

CSO: 1840/436

IMMOBILIZATION OF PROTEOLYTIC ENZYMES ON DRESSINGS

Kiev DOKLADY AKADEMII NAUK UKRAINSKOY SSR, SERIYA B: GEOLOGICHESKIYE, KHIMICHESKIYE I BIOLOGICHESKIYE NAUKI in Russian No 1, Jan 86
(manuscript received 11 May 85) pp 81-84

[Article by A.V. Chubenko, T.I. Davidenko, Yu.P. Potapkiy, A.A. Bondarchuk, S.A. Andronati, corresponding member, Ukrainian SSR Academy of Sciences, V.I. Zheleznyy and Yu.M. Zhukovskiy, Physical Chemistry Institute, Ukrainian SSR Academy of Sciences, Odessa]

[Abstract] Immobilization of several animal, plant and bacterial proteolytic enzymes on various dressing was evaluated in a formulation intended to be used in the treatment of burns. The summarized data demonstrated that trypsin, papain and a bacterial protease retained from ca. 32 to 80% of their activity when immobilized on surgical gauze or synthetic bandages (50% Viscose, 50% Lavsan), followed by gamma-irradiation (2.5 Mrad) for sterilization. However, Lavsan had a negative effect on activity. On gauze 76.8% of the activity was retained after a year of storage, and on the synthetic bandage about 81.1% after two years of storage. The indications for clinical utility of such enzyme preparations come from the observation that they were effective in the dissolution of human scabs in vitro, and in enhancing the healing process in chinchilla rabbits with infrared radiation-induced burns. Figures 1; references 9: 8 Russian, 1 Western.

12172/9835
CSO: 1840/429-B

TREATMENT OF EYE DISEASES IN LATVIA

Riga SOVETSKAYA LATVIYA in Russian 21 Jan 86 p 4

[Article by V. Smetannikov]

[Abstract] The (Latvian) Republic Center for Eye Microsurgery is the first in the Baltic states to engage in the implantation of artificial corneas for cataract treatment, obviating the need for local patients to travel to Moscow or Leningrad for the same procedure. Yet, as explained by I. Valkova, director of the Center, the availability of such treatment isn't well publicized in Latvia or the other Baltic republics, and many patients are referred elsewhere, far from home. In the last few years the Center has shown tremendous development, with some 2000 ophthalmic microsurgeries performed annually for various conditions. The Center enjoys the latest in medical technology, has an excellent reputation, and now attracts patients from Belorussia and as far away as the Ukraine and even Siberia. In the final analysis, of course, the success of the Center depends on its highly motivated and dedicated staff.

12172/9835
CSO: 1840/434

ADVANCEMENTS IN SURGICAL TREATMENT OF PARALYSIS

Moscow IZVESTIYA in Russian 19 Feb 86 p 3

[Article by L. Ivchenko]

[Abstract] Yu. Ginzburg, doctor of medical sciences and orthopedic surgeon at the 31st Moscow City Clinical Hospital has developed a technique for returning movement to limbs paralyzed by polio. The essential features of his approach consists of the surgical transplanation of working muscles from other parts of the body as replacements for atrophied muscles of the lower extremities. While his approach has gained an international recognition and approval, interest within the USSR seems minimal. When the USSR Ministry of Health arranged for 15 physicians to take training from him in this procedure, only 10 showed up, and only 3 of them were orthopedists. It is noted that, while international recognition is fine, patients at home are the ones who deserve to benefit from medical advances.

12172/9835

CSO: 1840/437

NEW TYPE OF THERMOMETER

Moscow TRUD in Russian 10 Jan 86 p 4

[Article by A. Pominov]

[Abstract] A scientific team at a scientific research institute in Gorkiy (NIRFI), headed by V.S. Troitskiy, corresponding member of the USSR Academy of Sciences, perfected a radiowave-based thermometer for medical use. The principles underlying this new instrument are the same as those used by astrophysicists in determining the temperatures of distant stars and planets, and allow the precise measurement of the temperature of interior organs, in the brain, the liver and the heart. Unfortunately, because of bureaucratic difficulties, mass production of the radiothermometer could not be arranged, and this instrument is generally unavailable to medical science except in Gorkiy.

12172/9835

CSO: 1840/435

MELANCONIALES ON LEGUMES IN LITHUANIAN SSR (PART 4)

Vilnius TRUDY AKADEMII NAUK LITOVSKOY SSR. SERIYA V in Russian Vol 1, 1985 (received by editors 4 Mar 83) pp 20-27.

[Article by M. K. Ignatavichyute, Institute of Botany of the Lithuanian SSR Academy of Sciences]

[Text] 1. Introduction. A study of the species composition of melanconiales parasitizing on representatives of legumes belonging to the genera wild indigo (*Baptisia* Vent.), crown vetch (*Coronilla* L.), goat's rue (*Galega* L.), Russian almond (*Laburnum* Med.), peavine (*Lathyrus* L.), lupin (*Lupinus* L.), Dakota vetch (*Lotus* L.), lucerne (*Medicago* L.), sweet clover (*Melilotus* L.), common bird's foot (*Ornithopus* L.), beans (*Phaseolus* L.), peas (*Pisum* L.), black locust (*Robinia* L.), clover (*Trifolium* L.), and common vetch (*Vicia* L.), their distribution in the Lithuanian SSR, a detection of the most harmful species and a generalization of literature data on these fungi were the objects of this work.

2. Method. The article presents both literature data published in 1928-1977 [1-7] and data collected by us in 1970-1982 during mycologo-phytopathological expeditions in all 44 administrative rayons of the Lithuanian SSR. The determination of fungus and plant species was made according to [18-22].

In the list presented below species of the described fungi and host plants are indicated in an alphabetic order. The following abbreviations are used: c.--city; v.--village; loc.--locality; u.t.s.--urban-type settlement; con.--conidia.

Melanconiales were found in 21 administrative rayons and 5 cities, that is:

in the following rayons: Akmyanskiy (Akm., villages of Vyanta, Kreklyay, and Santyaklyay), Alituskiy (Al., v. of Punya), Varenskiy (Var., v. of Paruchyay), Vilkavishkiy (Vilk., villages of Gizhay, Payavonis, Parausyay, and Rumokay), Ionishkiy (Ion., c. of Zhagare, and v. of Zhyuryay), Kapsukski (Kap., villages of Vidgirelyay and Kyarmushine), Kaunasskiy (Kaun., v. of Noreykishkes and l. of Syaryadzhyus), Kedaynskiy (Ked., c. of Dotnuva), Kryatingskiy (Kryat., l. of Kartyana and v. of Raguvishkyay), Kupishkiy (Kup., v. of Kimshay), Lazdiyskiy (Laz., v. of Pyatroshkay), Mazheykiy (Mazh., the Vyanta Railroad Station, l. of Tirkshlyay, and villages of

Dautaray and Tulnikeyay), Moletskiy (Mol., villages of Vilkarayschay and Yuochyay), Panyavezhskiy (Pan., l. of Mezhashchikay), Rokishskiy (Rok., v. of Vizhuona), Skudasskiy (Sk., v. of Pryalgava), Trakayskiy (Tr., v. of Paluknis), Utyanskiy (Ut., the Utyanskaya Experimental Station), Shchyayanskiy (Shch., u.t.s. of Gyalgaudishkis and v. of Shilvenay), Shchyayanskiy (Shchyaul., Lake of Biyete and l. of Kurtuvenay), and Shilutskiy (Shil., v. of Usenay);

in the following cities: Vilnius (microregions: Vyarkay, Dvarchenis, and Yarusale), Kaunas (Kaunas Botanical Garden [KBS]), Nyaringa (settlement of Nida), Prenay, and Eyshishkes.

3. List of Species of Melanconiales Parasitizing on Legumes Found in Lithuania in 1927-1982.

1. *Gloeosporium davisii* Ell. et Ev.

Yellow-brown spots. Con. 4.5-7.5X2-3, mostly 5-6.8X2-3 microns.

On leaves and fruits of *Vicia silvatica* L., Al., Puna, Sep 1970 [1].

General distribution: the USSR (Baltic states), Europe, and America.

2. *Gloeosporium leguminis* C. et Harkn. var. *robiniae* Karst. et Harkn.

At first spots are yellowish and light-brown and later red-brown. Con. 6-13.5X2-4, mostly 6.8-10.6X3-4 microns.

On leaves of *Robinia pseudoacacia* L., Nyaringa and Nida, 23 Aug 1975 [4, 5].

General distribution: the USSR (Baltic states) and North America.

3. *Gloeosporium morianum* Sacc.

Spots on leaves are pale-yellowish or ochreous, often being totally absent. Stromata are primarily on the upper part, numerous, in groups, brownish, or black. Con. 4.5-10.5X1.5-4, mostly 5.2-9X1.5-3.6 microns.

On leaves of *Medicago falcata* L., Kryat., Kartyana, 21 Aug 1971; on *M. lupulina* L., Akm., Santyakyay, Kryat., Kartyana and Raguvishchikay, Mazh., Tulnikeyay and Vyanta, Aug 1971; on *M. sativa* L., Akm., Kreklyay, Aug 1971 (here and there up to 25-30% of the plants were affected); on *M. tianschanica* Voss., Kaunas, KBS, 3 Sep 1970 [1-3].

General distribution: the USSR, Europe, and North America.

4. *Gloeosporium trifolii* Peck.

Spots are brown, almost round, with concentric zones. Con. 15-23X4-6 microns.

On leaves of *Trifolium pratense* L., Ked., 1927 [6-8] and on *T. medium* Grufb., 5 Jul 1928, Vilc., Parausyay [8, 9].

General distribution: the USSR (Baltic states).

5. *Gloeosporium trifoliorum* Rothers

Spots are elongated, located along lateral nerves, at first light-brown and later almost black. Con. 4.5-7.5X1.5-2, mostly 5.1-7.5X1.1-1.9 microns.

On leaves of *Trifolium pratense* L., in the Lithuanian SSR in 1953 and 1954 here and there up to 26-35% of the plants were affected [10], Kap., Vidgirelyay and Kyarmushine, Jun 1973, Kup., Kimshay, 14 Jun 1973, and Vilks., Payavonis and Rumokay, Jun 1973 (here and there from 35 to 43% [sometimes up to 60%] of the plants were affected) [3].

General distribution: the USSR (Baltic states, the UkSSR, and Arkhangelsk Oblast).

6. *Gloeosporium* sp.

Spots on leaves and stems are dark brown with a gray center and elongated. Con. 6-10.5X3-4 microns.

On leaves of *Galega officinalis* L., Kaunas, KBS, 3 Sep 1970 [2].

7. *Kabatiella caulivora* (Kirchn.) Karak. Syn.: *Gloeosporium caulivora* Kirchn.

Different-size spots on stems, leaves, and leaf stalks are brownish, with dark borders, and impressed. Con. 9-24X2.5-5, mostly 11.5-19.2X2.6-3.8 microns.

Primarily on stems and leaf stalks of *T. pratense* L. on the entire territory of the Lithuanian SSR, especially on 2- and 3-year old crops (here and there from 7 to 53% [sometimes up to 82%] of the plants were affected) [2, 3, 8, 10-12].

On *T. medium* Grufb., Vilks., 12 Jul 1971 [11, 12].

Fifteen strains of the fungus *K. caulivora* widespread in various administrative rayons and differing in cultural characters and pathogenicity were isolated in the Lithuanian SSR in 1980-1982.

8. *Kabatiella nigricans* (Atk. et Edg.) Karak. Syn.: *Protocoronospora nigricans* Atk.

Spots on leaves, stems, and fruits are small, elongated or round, dark-brown or red-brown up to black. Con. 9-24X3-4.5, mostly 9.5-17.7X2.8-4.2 microns.

On leaves, stems, and fruits of *Vicia amphicarpa* Dorth., Ked., Dotnuva, 6 Aug 1970 [11]; on *V. cracca* L., Mol., Vilkarayschyay, 26 Aug 1964 and 20 Jun 1966, and Yuochyay, 12 Jun 1968, Vilks., 2 Jul 1966, Kaun., Noreykishkes, 23 Aug 1969, Tr., Paluknis, 29 Jun 1969, and Al., Punya, 2 Sep 1970 [11]; on *V. pannonica* Crantz., Ked., 6 Aug 1970 [11], Akm., Kreklyay, 19 Aug 1971, Sk.,

Pryalgava, 9 Aug 1972, Kryat., 6 Aug 1972, and Eyshishkes, 26 Jun 1972; on *V. sativa* L., Ked., Dotnuva, 5 Sep 1970 [2,3].

General distribution: the USSR (Baltic states and the UkSSR) and North America.

9. *Colletotrichum lindemuthianum* (Sacc. et Magn.) Br. et Cav. Syn.: *Gloeosporium lindemuthianum* Sacc. et Magn.

Spots, primarily on pods, are round, at first small, later increasing, from pale to dark- or red-brown, often with a yellow-brown or reddish edge. On stems and leaves in the form of elongated brown stripes. Con. 10.5-21X3-6, mostly 11.4-18.8X3.3-5.8 microns.

On pods of *Phaseolus vulgaris* on the entire territory of the Lithuanian SSR [2, 6, 8, 11-13] and on *Ph. histericus* Par., KBS, 3 Sep 1970 [2].

General distribution: the USSR, Europe, Asia, Africa, America, and Australia.

10. *Colletotrichum pisi* Pat.

Spots on leaves are gray or brown, in the center, paler, on pods, dingy-whitish, round or oval with dark-brown borders, and on stems, elongated. Con. 10.5-24X3-6, mostly 12.8-20.2X3.2-5.4 microns.

On leaves, stems, and pods of *Pisum sativum* L., Ked., Dotnuva, Aug 1935 [7, 14] and 7 Aug 1970 (up to 75% of the plants were affected) [11], Pan., Mezshishkyay, 19 Jul 1972 [3], Vilnyus and Dvarchenis, Aug 1982 and 1983; on *Lathyrus pratensis* L., Akm., Santyaklyay, 21 Aug 1971, Mazh., Tirkshlyay, 24 Aug 1971.

General distribution: the USSR, Europe, Asia, and America.

11. *Colletotrichum trifolii* Bain et Essary

Spots on leaves are black or brown, small to large, on stems, extended, and in center, pale. Con. 7.5-15X2-5 microns.

On all above-ground parts of *Trifolium pratense* L., Al., Punya, Sep 1970, Akm., Vyanta and Kreklyay, Ion., Zhagare, Mazh., Kryat., Kartyana, Aug 1971; on *T. medium* L., Shyaul., Lake Biyete, Sep 1970; on *Vicia cracca* L., Al., Punya, Sep 1970, Kryat., Kartyana, Mazh., Tulnikyay, Aug 1971; on *V. sativa* L., Shyaul., Lake Biyete, 10 Sep 1970; on *V. sepium* L., Ion., Zhyuryay, 18 Aug 1971; on *Vicia* sp., KBS, 3 Sep 1970; on *Medicago falcata* L., Kaun., Syaryadzhyus, 7 Sep 1970, Akm., Vyanta, 19 Aug 1971; on *Melilotus albus* Med., Al., Punya, 3 Sep 1970, Shyaul., Kurtuvenay, 10 Sep 1970, Akm., Vyanta, 19 Aug 1971; on *Coronilla varia* L., Al., Punya, 2 Sep 1970; on *Lotus corniculatus* L., Mazh., Dautaray, 23 Aug 1971 [2, 3]; on *Ornithopus sativus* L., Var., Paruchyay, 13 Aug 1964 [11].

General distribution: the USSR, Europe, and North America.

12. *Colletotrichum villosum* Weimer.

Spots on both sides of the leaves are small, round, at first light-green, later light-brown, or gray with a brown or red edge. Spots on stems are extended lengthwise, dark to black. Con. L., Var., Paruchyay, 13 Aug 1964 [11].

On leaves of *Vicia sativa* L., Ked., Dotnuva, Aug 1970 (up to 10% of the plants of the Zhyalvyay variety were affected) [11].

General distribution: the USSR (Baltic states and the UkSSR) and North America.

13. *Vermicularia* sp.

Spots on leaves are dark-brown, small, round or with a light middle. Con. 15-45X3-6, mostly 22.8-36.2X3-5.3 microns.

On *Vicia cracca* L., Al., Punya, 2 Sep 1970 [2].

General distribution: the USSR (Baltic states).

14. *Septomyxa* sp.

On *Robinia pseudoacacia* L., KBS, 1958 [15].

General distribution: the USSR (Baltic states).

15. *Pestalotia lupini* Sorauer

Spots on leaves are yellowish, quite big, and blending.

On *Laburnum anagyroides* Med., KBS, 11 Aug 1959 [16, 17]. On leaves and pods of *Lupinus polyphyllus* Lindl., Ked., Dotnuva, 29 May 1932 [9, 14].

General distribution: the USSR (Baltic states).

16. *Cylindrosporium robiniae* (Lib.) Died. Syn.: *Phleospora robiniae* (Lib.) Hoehn.

Spots on leaves have an incorrect form, or are round, at first yellowish, later brown, without an edge, or sometimes with a darker narrow border. Con. 18-66X3-4.5, mostly 28.5-53.7X2.8-3.8 microns.

On *Robinia pseudoacacia* L., Vilnius, Vyarkyay, and Yaruzale, Sep 1973 and 1974, and the Utyanskaya Experimental Station, 19 Aug 1978.

General distribution: the USSR (Baltic states, Kursk Oblast, the GSSR, the UkSSR, and North Caucasus).

17. *Cylindrosporium potebniae* Vassil. Syn.: *Phleospora caraganae* Jacz var. *lathyri* Poteb.

Spots on leaves are elongated, ochreous-yellow, or brown, often growing paler later, and without an edge. Con. 24-60X2-6 microns.

On *Coronilla varia* L., Al., Puna, 2 Sep 1970 [1, 2]; on *Lathyrus maritimus* L., Nyaringa and Yudkrante, Jul 1969; on *L. pratensis* L., Vilnyus, 8 Jul 1962, Vilks., Gizhay, 21 Aug 1963, Prenay, 25 Jun 1966 and Shil., Usenay, 20 Aug 1966 [11].

General distribution: the USSR (Baltic states, Tambov Oblast, the Bashkir ASSR, and Omsk Oblast), the GDR, and the FRG.

18. *Cylindrosporium viciae* M. Miura

Spots on leaves are brown. Con. 29-66X4.5-6, mostly 41.8-59.2X4.2-5.1 microns.

On *Vicia cassubica* L., Shyaul., Kurtuvenay, 10 Sep 1970 [4]; on *V. sepium* L., Laz., Pyatoshkay, 23 Aug 1963, Rok., Vizhuona, 25 Jul 1969, Ked., Dotnuva, 27 Aug 1967 and Al., Puna, 2 Sep 1970 [11].

General distribution: the USSR (Baltic states and the Transbaykal area).

19. *Marssonina baptisiae* (Ell. et Ev.) Magn. Syn.: *Marssonina baptisiae* Ell. et Ev.

Spots are round, yellow-brown, with wide, almost black borders. Con. 8-18X3-6, mostly 9.4-14.5X3.5-5.5 microns.

On leaves of *Baptisia* Vent., KBS, 3 Sep 1970 [2].

General distribution: the USSR (the Lithuanian SSR) and North America.

Investigations have shown that in the Lithuanian SSR melanconiales affect mainly leguminous fodder crops, that is, clover (*Trifolium*), common vetch (*Vicia*), common bird's foot (*Ornithopus*), sweet clover (*Melilotus*), lucerne (*Medicago*), Dakota vetch (*Lotus*), lupin (*Lupinus*), peavine (*Lathyrus*), beans (*Phaseolus*), peas (*Pisum*), and crown vetch (*Coronilla*).

Four species of melanconiales, that is, *Gl. leguminis* var. *robiniae*, *Cyl. robiniae*, *Septomyxa* sp., and *Pestalotia lupini*, parasitize on the lignified black locust and Russian almond (*Robinia*, *Laburnum*) species of legumes.

The causal agents of anthracnosis in clover, that is, *Gl. trifoliorum* (here and there they affected 26 to 60% of the plants) and, especially, *Kabatiella caulivora* (7 to 82%), in which 15 strains differing in cultural characters and aggressiveness were determined in the Lithuanian SSR, were the most widespread and of economic significance. The species *Coll. trifolii* was widespread not only on *Trifolium*, but also on other fodder legumes, such as *Coronilla*, *Medicago*, *Melilotus*, *Lotus*, *Ornithopus*, and *Viciae*. *Gl. morianum* parasitized on *Medicago* (here and there 25 to 30% were affected). *Coll. lindemuthianum*, the causal agent of anthracnosis in beans, was widespread on the entire

territory of the Lithuanian SSR and *Coll. pisi*, the causal agent of anthracnosis in peas, here and there (sometimes 5 to 75% of the plants were affected). The species *Kabatiella nigricans* was often found on the species *Viciae* and the species *Coll. villosum* and *Cyl. viciae*, more rarely on *Vicia*.

Table 1. Species of Melanconiales Parasitizing on Legumes Found in Lithuania in 1927-1982

No in order	Fungus Species	Host Plant
1	<i>Gloesporium davisii</i> Ell. et Ev.	<i>Vicia silvatica</i> L.
2	<i>G. leguminis</i> C. et Harkn. var. <i>robiniae</i> Karst. et Harkn.	<i>Robinia pseudoacacia</i> L.
3	<i>G. morianum</i> Sacc.	<i>Medicago falcata</i> L., <i>M. lupulina</i> L., <i>M. sativa</i> L., <i>M. tianschanica</i> Voss.
4	<i>G. trifolii</i> Peck.	<i>Trifolium medium</i> Grufb., <i>T. pratense</i> L.
5	<i>G. trifoliorum</i> Rothers	<i>T. pratense</i>
6	<i>Gloeosporium</i> sp.	<i>Galega officinalis</i> L.
7	<i>Kabatiella caulivora</i> (Kirchn.) Karak.	<i>T. medium</i> , <i>T. pratense</i> .
8	<i>K. nigricans</i> (Atk. et Edg.) Karak.	<i>V. amphicarpa</i> Dorth., <i>V. cracca</i> L., <i>V. pannonica</i> Crantz., <i>V. sativa</i> L.
9	<i>Colletotrichum lindemuthianum</i> (Sacc. et Magn.) Br. et Cav.	<i>Phaseolus vulgaris</i> L., <i>Ph. histericus</i> Par.
10	<i>Coll. pisi</i> Pat.	<i>Pisum sativum</i> L., <i>Lathyrus pratensis</i> L.
11	<i>Coll. trifolii</i> Bain. et Essary	<i>Coronilla varia</i> L., <i>Lotus corniculatus</i> L., <i>M. falcata</i> , <i>Melilotus albus</i> Med., <i>Ornithopus sativus</i> L., <i>T. medium</i> , <i>T. pratense</i> , <i>V. cracca</i> , <i>V. sativa</i> , <i>V. sepium</i> L., <i>Vicia</i> sp.
12	<i>Coll. villosum</i> Weimer	<i>V. sativa</i>
13	<i>Vermicularia</i> sp.	<i>V. cracca</i>
14	<i>Septomyxa</i> sp.	<i>R. pseudoacacia</i>
15	<i>Pestalotia lupini</i> Sorauer	<i>Laburnum anagyroides</i> Med., <i>Lupinus polyphyllus</i> Lindl.
16	<i>Marssonina baptisiae</i> (Ell. et Ev.) Magn.	<i>Baptisia</i> sp.
17	<i>Cylindrosporium robiniae</i> (Lib.) Died.	<i>R. pseudoacacia</i> L.
18	<i>Cyl. potebniae</i> Vassil.	<i>C. varia</i> , <i>L. maritimus</i> L., <i>L. pratensis</i>
19	<i>Cyl. viciae</i> M. Miura	<i>V. cassubica</i> L., <i>V. sepium</i>

4. Conclusions

1. As a result of an analysis of data published by various authors in 1928-1977 [1-17] and data collected by the author of this article in the summers of 1970-1982 during mycologo-phytopathological expeditions in all 44 administrative rayons in the Lithuanian SSR, 19 species of melanconiales parasitizing on 26 species of families of legumes (Fabaceae) were found in 21 of them.

2. Six species (*Gloeosporium davisii*, *G. leguminis* var. *robiniae*, *G. morianum*, *Vermicularia* sp., *Marssonina baptisiae*, and *Cylindrosporium robiniae*) are new for the mycoflora of the Lithuanian SSR.

3. All the found 19 fungus species with the exception of 4 species (*Gloeosporium leguminis*, *Septomyxa* sp., *Cylindrosporium robiniae*, and *Pestalotia lupini*) are parasites of fodder crops.

4. Of the found species *Kabatiella caulivora*, *Colletotrichum trifolii*, and *Coll. lindemuthianum*, the causal agents of anthracnosis in clover and beans, are of special practical significance in the Lithuanian SSR.

Table 2. Host Plants of Melanconiales Parasitizing On Legumes

No in order	Host Plant	Parasite
1	<i>Baptisia</i> sp.	<i>Marssonina baptisiae</i> (Ell. et Ev.) Magn.
2	<i>Coronilla varia</i> L.	<i>Colletotrichum trifolii</i> Bain. et Essary, <i>Cylindrosporium potebniae</i> Vassil.
3	<i>Galega officinalis</i> L.	<i>Gloeosporium</i> sp.
4	<i>Laburnum anagyroides</i> Med.	<i>Pestalotia lupini</i> Sorauer
5	<i>Lathyrus maritimus</i> L.	<i>Cyl. potebniae</i>
6	<i>L. pratensis</i> L.	<i>Cyl. potebniae</i> V., <i>Coll. pisi</i> Pat.
7	<i>Lotus corniculatus</i> L.	<i>Coll. trifolii</i>
8	<i>Lupinus polyphyllus</i> Lindl.	<i>Pest. lupini</i>
9	<i>Medicago falcata</i> L.	<i>Gl. morianum</i> Sacc., <i>Coll. trifolii</i>
10	<i>M. lupina</i> L.	<i>Gl. morianum</i>
11	<i>M. sativa</i> L.	"
12	<i>M. tianschanica</i> Voss.	"
13	<i>Melilotus albus</i> Med.	<i>Coll. trifolii</i>
14	<i>Ornithopus sativus</i> L.	"
15	<i>Phaseolus vulgaris</i> L.	<i>Coll. lindemuthianum</i> (Sacc. et Magn.) Br. et Cav.
16	<i>Ph. histericus</i> Par.	"
17	<i>Pisum sativum</i> L.	<i>Coll. pisi</i>
18	<i>Robinia pseudoacacia</i> L.	<i>Gl. leguminis</i> C. et Harkn. var. <i>robiniae</i> Karst. et Harkn., <i>Septomyxa</i> sp., <i>Cyl.</i> <i>robiniae</i> (Lib.) Died
19	<i>Trifolium medium</i> L.	<i>Gl. trifolii</i> Peck., <i>Kabatiella caulivora</i> (Kirchn.) Karak., <i>Coll. trifolii</i>
20	<i>T. pratense</i> L.	"
21	<i>Vicia amphicarpa</i> Dorth.	<i>Kabatiella nigricans</i> (Akt. et Edg.) Karak.
22	<i>V. cracca</i> L.	<i>Kab. nigricans</i> , <i>Coll. trifolii</i>
23	<i>V. cassubica</i> L.	<i>Cyl. viciae</i> M. Miura
24	<i>V. pannonica</i> Crantz.	<i>Kab. nigricans</i>
25	<i>V. sativa</i> L.	<i>Kab. nigricans</i> , <i>Coll. trifolii</i> , <i>Coll.</i> <i>villosum</i> Weimer
26	<i>V. sepium</i> L.	<i>Coll. trifolii</i> , <i>Cyl. viciae</i> M. Miura
27	<i>V. silvatica</i> L.	<i>Gl. davisii</i> Ell. et Ev.

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CSO: 8144/0936

UDC 582.232:575.224.2:581.133.)

CYANOBACTERIUM ANABAENA VARIABILIS MUTANTS RESISTANT TO
METHIONINESULFOXIMINE AND METRONIDASOLE

Moscow VESTNIK MOSKOVSKOGO UNIVERSITETA. SERIYA 16. BIOLOGIYA
in Russian No 2, Apr-Jun 85 (manuscript received 2 Feb 84) pp 59-65

[Article by L.Ye. Polukhina, O.A. Koksharova, N.A. Maysuryan and
S.V. Shestakov]

[Abstract] In a study of the mechanisms regulating nitrogen fixation, cyanobacterium *Anabaena variabilis* mutants were isolated; these agents were resistant to methioninesulfoximine (MSO) and metronidasole (MD). The frequency of the occurrence of MSO-resistant mutants was $7 \cdot 10^{-5}$ and MD -- $4 \cdot 10^{-5}$. Several dozen of these mutants were isolated. Only one MSO mutant was found to differ from wild strains by increased sensitivity of the nitrogen fixation process to oxygen. The MD mutants obtained did not differ much from the wild strain. The MD mutants are interesting from the aspect of new studies of nitrogen fixation regulations connected with energy supply to nitrogenase as well as in the studies of the mechanisms of photosynthesis and metabolism of carbohydrates in cyanobacterium cells. However, in contrast to MS-mutants, their use in genetic analysis of cyanobacteria is complicated because of poor viability of its strains and low resistance to the selecting agents. References 19: 2 Russian, 17 Western.

7813/9835
CSO: 1840/417

PUTATIVE MECHANISM OF RECOMBINATION BETWEEN RNA GENOMES

Moscow DOKLADY AKADEMII NAUK SSSR in Russian Vol 286, No 5, Feb 86
(manuscript received 4 Nov 85) pp 1272-1275

[Article by V.M. Blinov, L.I. Romanova, Ye.A. Tolskaya, Ye.G. Viktorova, M.S. Kolesnikova, Ye.A. Guseva and V.I. Agol, All-Union Scientific Research Institute of Molecular Biology, Novosibirsk; Institute of Poliomyelitis and Viral Encephalitides, USSR Academy of Medical Sciences, Moscow]

[Abstract] An analysis was conducted on inter-type recombinants of polio-virus in order to formulate a putative recombination mechanism on the basis of the primary structure at the crossover site. The proposed model mechanism assumes that initially the RNA molecules interact with one another to form hydrogen bonds between regions that are mutually complementary in the single strand molecules. This event leads to physical approximation of the recombinational sites of two genomes that are homologous. It is further assumed that viral RNA polymerase which synthesized the (-)-chain on the genomic RNA template may be 'retarded' within the intermolecular 'synapse'. The newly synthesized 3'-end of the (-)-chain may then separate from the template and 'jump' on the adjacent homologous region of the second genomic RNA. Subsequently, resumption of the synthetic process on the second template results in the formation of a recombinant (-)-chain, that is then used for the production of daughter genomes. Figures 3; references 15: 3 Russian, 12 Western.

12172/9835
CSO: 1840/425

DEVELOPMENT OF METHOD FOR OBTAINING TYPE D STAPHYLOCCAL ENTEROTOXIN

Alma-Ata IZVESTIYA AKADEMII NAUK KAZAKHSKOY SSSR: SERIYA BIOLOGICHESKAYA in Russian No 5, Oct-Nov 85, pp 82-83

[Article by R. B. Naubetyarov and M. L. Beylbayeva, Epidemiology, Microbiology and Infectious Diseases Research Institute, KaSSR Ministry of Health, Alma-Ata under the "Brief Communications" rubric: "Development of a Method for Obtaining Type D Staphylococcal Enterotoxin"]

[Text] Food poisonings produced by staphylococci comprise a large proportion of food poisonings of bacterial etiology. In connection with this, ever-increasing attention is being paid recently to a study of staphylococcal enterotoxins, which are the reason for poisonings. Six types of enterotoxins are known--A, B, C, D, E, and F, the classification of which is based on their specific reaction with antibodies. At the same time, inducers of food intoxications frequently produce enterotoxins A and D [1]. Currently, research in the USSR basically concerns a study of enterotoxins A and B, more rarely C, and therefore in view of the absence of work on type D, we undertook an attempt to develop a simple method for obtaining a homogeneous preparation of this toxin.

Strain *S. aureus* 494 obtained from the State Research Institute for Standardization and Control of Medical Biological Preparations imeni L. A. Tarasevich was used as the producer. An aqueous suspension of bacteria grown in Petri dishes on Marten agar was introduced into flasks each containing 1 liter of liquid nutrient medium, the basis of which comprised a 2 percent Bacto-Tryptone from the Difco Company. The cells were incubated for 22-24 hours at a temperature of 37° and aerated by stirring on a shaker at 250-280 rpm. The activity of the enterotoxin preparation was determined by the double immunodiffusion in gel reaction of O. Ouchterlony [2].

Disc-electrophoresis was conducted in polyacrylamide gel by V. K. Laemmli's method [3]. DE-32 cellulose from the Whatman Company was used in the work.

Type D staphylococcal enterotoxin (DSE) was obtained by a two-step method: by salting out with ammonium sulfate and removal of impurities by ion-exchange chromatography on (diethylamino)ethyl cellulose.

At the first stage of purification, bacteria cells were separated by centrifuging at 5000 rpm for 25 minutes, and the enterotoxin was concentrated by

salting it out from the culture liquid with ammonium sulfate. The precipitate was built up for 20-24 hours at a temperature of 4°. The precipitated material was separated by centrifuging at 5000 rpm for 45 minutes and then resuspended in a minimum volume of 0.005 M tris-HCl buffer at pH 6.8.

To determine the optimal concentration of ammonium sulfate at which the fullest extraction of toxic protein would be observed, it was precipitated at 60, 65, 70, 75 and 80 percent saturation. The precipitated enterotoxin preparation was then studied in the double immunodiffusion reaction with homologous antiserum. At this titer, the immunodiffusion reaction was respectively 1:4; 1:8; 1:16; 1:32 \pm 1:64; 1:32 \pm 1:64 and did not rise above 75 percent.

Consequently, 75 percent saturation with ammonium sulfate is the most optimal for salting out DSE.

To eliminate the salt from the precipitated material, the enterotoxin preparation was dialyzed against a stream of distilled water for 36-48 hours.

The selection of a method for the second purification step was based on the fact that DSE, which possesses a positive charge at pH 6.8, remains in solution during ion-exchange chromatography on (diethylamino)ethyl cellulose, and the negatively charged impurities which are associated with it are sorbed on the resin. The dialyzed preparation was carefully mixed with DE-32 cellulose, which had previously been neutralized with 0.005 M tris-HCl buffer. The procedure was carried out in a Buchner funnel. According to disc-electrophoresis data, there are several minor impurities together with the basic toxic component in the polyacrylamide gel in the DSE preparation being subjected to ion-exchange chromatography.

Thus, to obtain homogeneous type D staphylococcus enterotoxin, it is necessary to introduce an additional purification step into the system.

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CSO: 1840/392

REPRIMAND TO OFFICIALS OF MINISTRY FOR MEDICAL AND MICROBIOLOGICAL INDUSTRY

Moscow SOVETSKAYA ROSSIYA in Russian 21 Mar 86 p 3

[Article: "In the Ministry"]

[Text] In response to the article "Administrative Ecstasy" published in "Sovetskaya Rossiya" on 8 Dec 1985, Kh. Chibilyayev, head of the Technical Administration, Ministry for the Medical and Microbiological Industry has noted that the publication correctly criticized the activity of the All-Union Research Institute for Medicinal Plants. By order of the Ministry, the Institute's deputy director for scientific work, A. Brykin, has been relieved of his responsibilities. It was announced that N. Novopashin, deputy director for general affairs, was severely reprimanded. As partial reimbursement for losses incurred, a monetary fine was imposed for him for gross misconduct of financial management. A. Shavlinskiy, deputy director for scientific work, was also severely reprimanded. An RSFSR People's Control Committee decree severely rebuked Institute Director A. Zadorozhnyy and imposed a monetary fine on him as partial reimbursement for losses incurred.

A set of measures has been developed to shorten time to create individual chemicals and introduce them into medical practice, to increase the scope of production of raw medicinal plant materials, to step up research to identify and make efficient use of wild medicinal flora, and to intensify work on inventions.

12809/9835
CSO: 1840/1132

UDC 547.245'298'26:615.21

SYNTHESIS AND NEUROTROPIC PROPERTIES OF γ -HYDROXYBUTYRIC SILYLALKYLAMIDES

Riga IZVESTIYA AKADEMII NAUK LATVIYSKOY SSR: SERIYA KHIMICHESKAYA in Russian
No 6, Nov-Dec 85 (manuscript received 20 Jun 85) pp 737-744

[Article by E.Ya. Lukevits, S.K. Germane, V.N. Gevorgyan and
E.V. Serebrennikova, Institute of Organic Synthesis, LatvSSR Academy of
Sciences]

[Abstract] N-Silyalkylamides of γ -hydroxybutyric acid (GAMA) were studied in which the distance from silyl group to nitrogen atom and the substituents at the silicon atom were varied. These compounds were synthesized by reacting tetrahydro-2-furan derivatives with aminoalkylsilanes. All of them exhibited neurotropic activity: sedative and analgesic activity, influence on coordination of movements and weakening of skeletal muscles and lowered body temperature. Almost all of them exhibited anticonvulsive activity in electric shock. Most of these compounds intensified the narcotic action of hexobarbital. They were basically nontoxic (LD_{50} ranged from 400 to 1,000 mg/kg). The mechanism of action of these compounds with respect to the CNS was related to their effect on GAMA-ergic and dopamine-ergic systems of the brain. Figures 2; references 15: 12 Russian, 3 Western.

7813/9835

CSO: 1840/387

PYRIDOXAL-5-PHOSPHATE (PP) ANALOGS OF SUBSTANCE P AND ITS C-TERMINAL PENTAPEPTIDE

Yerevan BIOLOGICHESKIY ZHURNAL ARMENII in Russian Vol 38, No 9, Sep 85
(manuscript received 27 Nov 84) pp 788-793

[Article by T.N. Akopyan, A.M. Arzumanyan, A.G. Agadzhanyan,
A.A. Arutyubyan and A.Kh. Khanazadyan, Institute of Experimental Biology,
Armenian SSR Academy of Sciences]

[Abstract] PP was employed as a label to derivatize substance P (SP) and its C-terminal pentapeptide (amino acid sequence 7-11; CTPP) to obtain fluorescent analogs that readily lend themselves to quantification. In one of the SP analogs PP modified the epsilon amino group of a lysine residue, and, in another analog, both the epsilon amino group and the N-terminal amino group were labeled. In the case of CTPP, labeling involved the N-terminal amino group. Studies conducted with guinea pig intestinal preparations showed that the contractile activities of the analogs were on par with that of the native SP, whereas that of the derivatized CTPP was 20-fold greater than that of the unlabeled CTPP. Analysis of degradation kinetics in human plasma at 37° revealed that the rate of inactivation of SP was 1.6-fold greater than that of inactivation of the fluorescent analogs, and that the minimal detection level with the fluorescent assays was on the order of 1 picomoles/ml. These findings indicate that such fluorescent derivatives of SP and CTPP may find use in studies on ligand-receptor interactions. Figures 4; references 12:
1 Russian, 11 Western.

12172/9835
CSO: 1840/394

EFFECTS OF SELECTED BIOACTIVE SUBSTANCES ON SOMATIC EMBRYOGENESIS IN SPONGES AND ASEQUAL REPRODUCTION IN WORMS

Leningrad VESTNIK LENINGRADSKOGO UNIVERSITETA in Russian No 17, Issue 3,
1985 (manuscript received 29 Nov 83) pp 18-26

[Article by I.V. Pylilo, A.N. Sukhodolskaya, I.Yu. Voronkova and
T.N. Tkachenko]

[Abstract] Screening trials were conducted with sponges and worms to determine their suitability as test objects for evaluation of the biological activities of selected carcinogens and growth/regeneration stimulants. The growth stimulants employed were inosine and beta-(adeninyl-9-)alpha-alanine, both derivatives of purine, and the carcinogens

belonged to the carbamates (urethane), nitrosamines (diethyl- and dimethylnitrosamines and methylnitrosoarea) and the nitramines (dimethylnitramine), in view of the extensive use of the latter agents in agriculture. Testing on the sponge (*Ephydatia fluviatilis*) and the worm (*Aeolosoma variegatum*) demonstrated unequivocal antagonism between these two classes of agents both in the initial stages of sponge morphogenesis, and in the formation of zooids in the oligochetes. These observations indicate that such invertebrates should receive further consideration in testing and screening bioactive substances, particularly growth stimulants and carcinogens. Figures 3; references 15 (Russian).

12172/9835

CSO: 1840/1096

PHYSIOLOGY

SELECTED SYNOPSIS OF ARTICLE IN 'JOURNAL OF THE BELORUSSIAN SSR ACADEMY OF SCIENCES: BIOLOGICAL SCIENCES SERIES', NOV-DEC 1985

Minsk VESTSI AKADEMII NAVUK BSSR: SERYYA BIYALAHICHNYKH NAVUK in Russian
No 6, Nov-Dec 85 p 126

UDC 612.89:612.815

ACTION OF OXYTOCIN ON VISCERAL NERVOUS CONDUCTORS

[Synopsis of article by V.M. Rubakhova and R.G. Lemesh, pp 68-71]

[Text] It is demonstrated in experiments on cats that at a concentration of 0.15-0.2 IU/ml oxytocin inhibits conduction of excitations along nerves, which is subsequently restored after flushing in running Ringer-Locke solution on conduction of an excitation along nerves. 1 Table, 2 figures, 5 bibliographic references.

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11004/9835

CSO: 1840/414

UDC 577.1

EFFECTS OF SOMATOSTATIN AND NEUROHORMONE C ON PLASMA AND ERYTHROCYTE
ELECTROLYTE CONCENTRATIONS

Yerevan BIOLOGICHESKIY ZHURNAL ARMENII in Russian Vol 38, No 9, Sep 85
(manuscript received 13 Nov 84) pp 794-799

[Article by N.G. Khumaryan, R.M. Spranionyan, R.O. Karapetyan,
L.V. Shaginyan and A.A. Galoyan, Institute of Biochemistry, Armenian
SSR Academy of Sciences]

[Abstract] An analysis was conducted of the effects of somatostatin and neurohormone C on erythrocyte and plasma levels of sodium, calcium and potassium to delineate potential mechanism of action of these hormones on cardiac function. Studies with albino male and female rats demonstrated that intravenous injection of 50 IU of neurohormone C resulted in statistically significant elevation of plasma and erythrocyte potassium levels and in dialyzable calcium fraction in samples obtained 30 and 60 min after the injection. Intravenous injection of somatostatin (1-2 ug/rat) led to a statistically significant depression of erythrocyte potassium concentration 30 and 60 min after the injection. These observations deserve attention in that they indicate a definite electrolyte involvement in the mechanism of action of these hormones on the heart and also suggest potential antagonism between neurohormone C and calcitonin. However, neither hormone induced any electrolyte imbalance in venous blood samples following injection into cats. References 16: 10 Russian, 6 Western.

12172/9835
CSO: 1840/394

HEMOPOIESIS IN ANIMALS WITH HYPOREGENERATIVE ANEMIA FOLLOWING HIGH-
ALTITUDE HYPOXIA

Frunze ZDRAVOOKHRANENIYE KIRGIZII in Russian No 4, Jul-Aug 85 pp 22-24

[Article by A.A. Almerikova, Kirghiz Scientific Research Institute of
Cardiology]

[Abstract] Chinchilla rabbits were employed in a study on hemopoiesis with hyporegenerative anemia following return to lowlands (760 m above sea level) from a month's stay at high altitude (3200 m). Hyporegenerative anemia was induced by repeated bleedings and treatment with cytostatic agents. Evaluation of the various functional and morphological parameters demonstrated that under sea altitude conditions hyporegenerative anemia followed a severe course with prolonged pancytopenia and bone marrow hypoplasia. The effects of high-altitude exposure (treatment) were beneficial in mitigating the severe effect of the anemia and in accelerating recovery of the hemopoietic system. Evidently, the hypoxic conditions encountered in the alpine environment for the period of time specified were sufficient to stimulate the depressed hemopoietic system in the chinchilla rabbits.

12172/9835
CSO: 1840/1100

UDC 577.3

EVALUATION OF HUMAN RESPIRATORY MOVEMENTS FROM CHANGES IN EXTERNAL
ELECTRIC FIELD

Leningrad VESTNIK LENINGRADSKOGO UNIVERSITETA in Russian No 17, Issue 3,
1985 (manuscript received 25 Feb 84) pp 112-114.

[Article by V.V. Popov]

[Abstract] Studies were conducted on the detection and evaluation of human respiratory movements by an analysis of the changes in the external electric fields over various body parts induced by changes in the surface charge of clothing, as well by surface charge imparted by a current from a 70 V dry-cell battery. The recorded electric field in a given individual behaved in synchrony with respiratory activity, with modulation both of amplitude and pattern over the various parts of the body. In view of variation among individuals, records of the changes in electric fields can be used as 'fingerprints' of individual respiratory activity. Figures 1; references 2 (Russian).

12172/9835
CSO: 1840/1096

BLOOD-BRAIN BARRIER IN EMOTIONAL STRESS

Moscow USPEKHI FIZIOLOGICHESKIKH NAUK in Russian Vol 16, No 2, Apr-Jun 85
pp 61-76

[Article by T.I. Belova and Yu. Yunson, Institute of Normal Physiology
imeni P.K. Anokhin, USSR Academy of Medical Sciences; Carolina Institute;
Swedish Royal Academy of Sciences, Stockholm]

[Abstract] A study is presented of the topographic specifics of the blood-brain barrier, excluding known nonbarrier zones. Data from the Soviet and Western literature are surveyed on the variability of the permeability of the barrier, in various areas, for macromolecules and biogenic amines in animals subject to emotional stress created by immobilization. Increased permeability of the barrier is discussed from the standpoint of its significance for autoregulation of physiological functions in stress. The barrier is found to be permeable not only in previously known nonbarrier zones but also in a number of other brain areas. Substances with varying molecular mass, including large protein molecules, can penetrate into the cerebral parenchyma under relatively normal conditions. All known forms of vascular permeability were discovered in some areas, which were preferentially rather than absolutely localized. There are, therefore, local specifics of permeability of the barrier. Significant elevations in barrier permeability in the oral and caudal segments of the brain stem were discovered upon long-term immobilization stress in rats. References 105: 43 Russian, 62 Western.

6508/9835
CSO: 1840/1059

UDC 577.3

THYROTROPIN-RELEASING HORMONE RECEPTOR LEVELS IN BRAIN OF HIBERNATING SUSLIK
(CITELLUS UNDULATUS)

Moscow DOKLADY AKADEMII NAUK SSSR in Russian Vol 286, No 5, Feb 86
(manuscript received 9 Oct 85) pp 1268-1271

[Article by K.N. Yarygin, L.I. Kramarova, G.R. Ivanitskiy, corresponding member, USSR Academy of Sciences, and S.G. Kolayeva, Institute of Biological Physics, USSR Academy of Sciences, Pushchino, Moscow Oblast; Institute of Experimental Cardiology, All-Union Cardiological Scientific Center, USSR Academy of Medical Sciences, Moscow]

[Abstract] To further define the physiological role of the thyrotropin releasing hormone (TRH) on the CNS in various stages of sleep, wakefulness and hibernation, a radioassay was conducted on TRH receptor levels in the

hippocampus and hypothalamus of the hibernating suslik (*Citellus undulatus*), and during the first day of short-term wakefulness. Analyses of the resultant Scatchard plots obtained with the use of tritiated TRH demonstrated that K_d values did not vary for the hypothalamus and hippocampus, nor did hibernation of wakefulness have a telling effect. However, the concentration of receptors in the hippocampus of wakeful suslik was reported to be significantly greater than the concentration of TRH receptors in the hippocampus of the hibernating animals. The hypothalamic concentration of TRH receptors was also greater in the wakeful animals than in the hibernating susliks. Finally, in any situation the hippocampal concentration of receptors was always greater than the hypothalamic concentration. Although the mechanism of action remains enigmatic, it is clear that TRH is involved in the physiology of the suslik sleep-wake cycle. Figures 2; references 13: 1 Russian, 12 Western.

12172/9835
CSO: 1840/425

UDC 616-005.4+616.12-008.331.1:616-0.72.8

EFFECTS OF PSYCHOSOCIAL FACTORS ON EFFICACY OF AUTOGENIC TRAINING IN PATIENTS WITH ISCHEMIC HEART DISEASE AND ESSENTIAL HYPERTENSION

Tbilisi SOOBSHCHENIYA AKADEMII NAUK GRUZINSKOY SSR in Russian Vol 120, No 3, Dec 85 (manuscript received 6 Apr 84) pp 653-656

[Article by G.V. Kavtaradze and M.O. Mamamtavrishvili, Scientific Research Institute of Experimental Cardiology imeni M.D. Tsinamdzgvrishvili, Georgian SSR Ministry of Health]

[Abstract] The efficacy of autogenic training in relation to selected psychosocial factors was evaluated on a total of 70 patients with ischemic heart disease and essential hypertension. Autogenic training was found effective in the form of 5-10 sessions, each lasting for 30 min, but the degree of efficacy was related to the psychosocial status. The mental and somatic state of patients subjected to autogenic training was more likely to improve in individuals with a more flexible personality, extroverts, and in subjects with moderate neurotic tendencies. Individuals with higher education also tended to benefit more from autogenic training than individuals with intermediate-level education. Therefore, it appears that serious consideration must be given to the psychosocial status of patients with coronary heart disease and essential hypertension in assessing the efficacy of autogenic training. References 4 (Russian).

12172/9835
CSO: 1840/419

ADVANTAGES, NEEDS OF COST-ACCOUNTING POLYCLINICS

Moscow MOSKOVSKAYA PRAVDA in Russian 31 Jan 86 p 3

[Article by M. Nefelova, chief physician of Polyclinic No 5 in the Administration of Cost-Accounting Medical Establishments, candidate of medical sciences: "In the Position of 'Stepchildren'"]

[Text] Outpatient medical care for residents of the capital is available not only from territorial polyclinics and medical-sanitary points, but from polyclinics operating on the cost-accounting system as well. More than a half-century's work experience of these establishments testifies to their popularity. This is explained primarily by the fact that it is possible to obtain qualified treatment from specialists for a minimum payment. Other attractive features are the possibility of freely choosing one's own physician and the absence of formal obstacles to obtaining a consultation--no special certificates or permissions are required. Nor is it necessary to produce documents proving identity. This makes it possible sometimes, at the patient's wishes, to secure an anonymous consultation with a physician.

It is known that certain physicians who are consultants in cost-accounting polyclinics have patients who have been bringing their entire families to them over the course of many years. Now grandmothers, now grandchildren come to the doctor for treatment. Sometimes this creates certain difficulties in the preliminary record for the consultant, leading to lines. But the clients are patient, they prefer to wait, as long as they get a chance to see "their own doctor."

Professors, doctors, and candidates of medical sciences from leading clinics are laboring in the 19 cost-accounting polyclinics. This, naturally, also attracts people to us. Characteristically, more than two-thirds of those who come to us are Muscovites. Half of them are people of working age, but cost-accounting polyclinics do not give out sick excuses. This means, I repeat: The patient is attracted by the opportunity to consult a doctor whom he trusts. After all, hardly any patient comes to us a second time if he does not get better.

Cost-accounting polyclinics today are multiple-specialty treatment-consulting establishments. In essence they are consulting-diagnostic centers operating on the cost-accounting system. But what kind of conditions are we working under? Out of 19 polyclinics, only four are located in standard buildings corresponding to modern norms. The majority are huddled in residential

buildings in various regions of the city. For example, our polyclinic, in Building No 4 on University Prospekt, occupies the first two floors of a residential building. The corridors are narrow, there is no lobby or waiting rooms. The offices are completely inadequate for expanding diagnostic services. This is seriously interfering with the work of the polyclinic and holding back its progress.

It is cramped, and so many residents frequently are crowded together. This creates a feeling of "squalor" in the establishment. Our other establishments are operating under similar conditions.

It is impossible to understand why cost-accounting polyclinics, which support themselves, pay for themselves, and even accumulate savings, are not given the opportunity to improve their material base. Obviously it is time to give some thought to typical designs for cost-accounting polyclinics in accordance with the demands of the times.

The priority attention of the Moscow City Ispolkom Main Administration of Health Care to budget establishments is understandable, it is explained by the fact that this is the basic link of health service. But cost-accounting polyclinics as well can and must make their contribution to resolving the central task facing the health care plan in the Main Directions of Economic and Social Development of the Country--raising the quality of medical care to the population. So we consider it timely and necessary to bring the attention of soviet and party organs and organs of health care to our establishments. Right now they are in the position of "stepchildren" in health care.

A number of organizational questions must be examined. The poor material base of cost-accounting polyclinics and their scattered diagnostic services force residents in need of an examination to travel to various polyclinics and spend a great deal of time on this.

We have no advance planning which takes into account the population's demand for different types of medical care. This leads to duplications in structure, waste of funds, and a situation where it is impossible to make correct use of equipment and cadres.

In our view, it is time to think about the areas of specialization of cost-accounting polyclinics. This would make it possible to ensure comprehensive and high-quality examinations of patients. The system of selecting cadres also requires reexamination. Under the system which has taken shape in cost-accounting polyclinics, along with highly qualified specialists there are consulting physicians who have long since lost touch with clinical bases. Some of them do not have a qualification category, and over the course of many years have not raised their qualifications, which is contrary to the requirements placed on the position of consulting physician. The physicians certification carried out has a formal nature. Couldn't we properly select the cadres of cost-accounting establishments by competition? This would make it possible to increase the requirements placed on physicians and raise their responsibility.

Our polyclinics do not have adequate ties with clinical institutes and institute departments. But we could be mutually beneficial both in questions of raising professional competence of consultants in cost-accounting polyclinics and in selecting patients of a particular type for scientific-research institutes and departments carrying out joint projects to adopt new treatment methods and so forth.

The cadres of cost-accounting establishments might be used in carrying out dispensarization if the functional responsibilities of consulting physicians were reexamined. Especially in rendering highly specialized care which is not always available in budget polyclinics. This, in our view, is a serious forbearance in the city's health service.

It must be noted that there is practically no information about the work of cost-accounting polyclinics, their structure, and availability. Rayon health care organs do not have such information available, so patients sometimes spend a great deal of time, at times quite unnecessarily, in searching for a specialist. Some thought must also be given to questions of continuity, interaction between cost-accounting and territorial polyclinics.

The financing of cost-accounting establishments is a serious question. The use of profits for articles of the budget, in our view, must proceed along the lines of expanding the rights of managers with the appropriate control by planning-finance organs. Cost-accounting polyclinics must have the right to obtain the necessary equipment, since the material base of these establishments should correspond to the capabilities of the cadres, as well as improving the results of work.

12255

1840/1079

PHYSICIAN CRITICIZES SYSTEM FOR ADOPTING, REWARDING NEW SCIENTIFIC DISCOVERIES

Moscow IZVESTIYA in Russian 3 Oct 85 p 3

[Article by G. Ilizarov, laureate of the Lenin Prize, Hero of Socialist Labor, deputy of the RSFSR Supreme Soviet, Kurgan: "Why Wait Years? A Doctor From Kurgan Muses on the Reasons Preventing the Adoption of Scientific Advances in Medical Practice"]

[Text] It is clear to everyone that modern science, including medical science, is working wonders. But only under one condition: that an advanced scientific idea does not grow dusty on the shelf but is adopted in practice. Our collective has succeeded not only in formulating new ideas but also in creating, based on them, effective methods of treating patients suffering from injuries and diseases of the locomotor system. A new scientific-practical direction has in effect appeared in traumatology and orthopedics.

I will briefly remind the reader of the essence of the matter. For the first time in the history of worldwide traumatology, we introduced in practice a bloodless treatment of all breaks of tubular bones, and replacement of major defects in the soft tissues and bone without grafting transplants. We also learned how to eliminate major shortening of the extremities and serious deformations of various bones and joints, make bones thicker, and successfully treat other complicated orthopedic and traumatological diseases.

A modern scientific-treatment complex has grown up in Kurgan. Hundreds of thousands of patients have been freed from serious ailments, sometimes leading to despair. Now the Kurgan Scientific-Research Institute of Experimental and Clinical Orthopedics and Traumatology is one of the largest in the country. It has a spacious treatment building, a clinic of experimental animals, an experimental production facility for manufacturing new pieces of equipment, and facilities for ambulatory treatment. The orthopedic and traumatological departments, the polyclinic, the theoretical sections and laboratories are fitted out with the latest equipment, computers, and other electronic technology.

Much has been written about the achievements of our collective. But, when you mentally grasp the path traveled, strewn not so much with roses as with thorns, with a pain in your heart you want to cry out: under more favorable conditions 35 years would not have been needed to achieve this, but only one-third, or at worst one-half the time!

In a paper at the June meeting of the CPSU Central Committee for questions of accelerating scientific and technical progress, some reasons which have held back and continue to hold back progress were given, including lack of organizational coordination, the absence of a technical base and routine, and bureaucratism. Proceeding from the experience of all these years, I would add yet another thing to this list: it must be admitted that one of the obstacles is jealous envy on the part of certain colleagues. Especially those higher up in the service.

Of course this is far from being the main obstacle on the path of establishing something new. But at the same time this far from optimal mood can hold back the advance of scientific thinking for a long time, because under the system which we currently have for adopting innovations, I am sorry to say, there is no logic. For example, our associates have developed original methods of treatment and created new, highly effective equipment. The USSR State Committee for Inventions and Discoveries awarded them author's certificates, thereby confirming their novelty and social usefulness. It would seem, would it not, that the discovery should now be put directly on the track to adoption? Alas, such was not the case.

People who have created something new are required themselves to collect the additional resolutions and decisions. When they have gotten all these, finally, they still need a positive decision from the USSR Ministry of Health Board for the Adoption of New Medical Technology and Medicines. But now even that is behind us. Now, until the author himself assembles the technical documentation (and frequently this is only in the power of the entire planning institute), his invention lies idle. Agreement and confirmation of technological documentation requires a decision of no less than 10 instances. At least 2 years is spent on this. As the capital becomes exhausted, other author's certificates are simply depreciating, the ideas becoming hopelessly obsolete.

Of course, the significance of a bold invention cannot always be immediately understood and appreciated. Additional explanations and discussion are needed. But we must investigate why an idea cannot be given an evaluation. Alas, often the role of arbiter is filled by a man who is inadequately trained. Or, conversely, the man is competent but for some motive known only to him he does not want to concern himself with the fate of something new.

But let's say that all the barriers have finally been left behind and the invention has found application. Its author, naturally, is morally satisfied. But materially? In order to get compensation according to an inventor's legitimate right, he must arm himself with patience and endurance. And then with a stack of paper, and continuously write, call, travel to someplace.

For many years now the management and scientific councils of our institute have been getting payments from the RSFSR Ministry of Health for awards to the authors of inventions adopted way back in 1974, 1976, and 1978! What happened? Only in 1983 did the Ministry of Health "make us happy": The State Committee for Inventions and Discoveries had to confirm that these innovations had indeed been adopted. We had to petition three times for this confirmation.

The system existing today for evaluating the effectiveness of something new adopted in medicine also fails to withstand criticism. I am not afraid to say that the grading system contained in the instructions of the All-Union Scientific Research Institute of Patent Information seriously hurts the interests of medical inventors. The authors of the instructions, which were agreed upon by the State Committee for Inventions and Discoveries and the State Committee for Science and Technology, proceed from the reasoning that it is impossible to determine with precision an effect in medicine. Well, if they don't believe it, of course it is impossible. But what if it is serious?

In our institute there is an organizational-methodological department which has spent many years making economic calculations of the effectiveness of the treatment we are carrying out. From 1 to tens of millions of rubles for each thousand individuals--this is the benefit provided by a new method of treatment as compared with traditional methods. By virtue of what? First, with the best results we reduce the time necessary by a factor of 2-3, sometimes even more. We get our patients back to work faster. This is a problem for elementary school--how much does the state benefit from such a reduction of the treatment time if it is known that hospital treatment of each patient costs 12-13 rubles every day? We treat a substantial portion of our patients, who usually would be put in a hospital, as outpatients, which provides great savings.

Here is another example. Machine operator N. from Irkutsk Oblast has spent a grand total of 5 years in various hospitals with a broken hand and has been operated on five times, always without success. In our institute he was treated for 33 days. Now he has the use of his hand, he can plow, sow, and gather the harvest. Well, what would you say is the economic effect of the treatment? And there are thousands of such examples not only among us--we have data also from other treatment establishments where they are using our methods.

What about the sale of our equipment abroad? (Unfortunately, we are not able to satisfy the great demand for it.) Isn't this an economic effect? Then why doesn't the All-Union Scientific Research Institute of Patent Information want to see the obvious?

It is not difficult to understand that in this situation questions of adopting something new and progressive are very frequently decided in one burst of enthusiasm. And a great deal of time and energy is spent which is not justified, and the goals are not always reached....

Judge for yourselves. Back at the beginning of the 1960s the USSR Ministry of Medical Industry directed the Gudermes Medical Instruments Plant to manufacture our apparatus. They are still turning them out today, since the demand is great. But today this equipment belongs to a time which is past. In 1974 we created a new, better and more universal set of equipment. The plant had to rearrange a number of things, update their equipment, and assimilate these new machines. But in the course of 10 years (!) they have not been able to do this. And the Ministry of Medical Industry did not help them. The inertia of the producers condemns to vegetation the most solicitous solutions, the fruits of the inventors' creative sufferings.

Here is another example. In the institute we have developed an original method for lengthening the extremities using methods of automation. But it is very difficult to implement this in a practical fashion. Where to place the order for manufacturing the equipment, which moreover requires the use of electronics? It is still unresolved. And if the interest in our new idea remains at this level, we risk being left behind in a few years.

Everything would probably be different if it were possible to create inter-departmental scientific-production associations. All of this is incomprehensible: despite the fact that, statistically, in our day traumatism in general after cardiovascular diseases is in second place, and among patients of working age in first place, the Academy of Medical Sciences still does not have a corresponding institute.

We are advised, even required to create associations with other scientific-research treatment establishments. In principle this demand would be correct if our related institutes were adequately fitted out with modern scientific-research apparatus and did not specialize in the same things, but rather in such a way that each of them could solve its own major and important scientific problems. Without this, we suggest, it is hardly possible to avoid duplication.

We would prefer a different method. The point is that many of our innovations have an interdisciplinary significance. Pursuing our goals, we almost involuntarily carry out a great deal of fundamental medical engineering and medical-biological research. In particular, some which has a general biological significance. Certain laws of biology which we have discovered are of significance not only for our discipline but also others.

For example, the discovery that stretching tension is a factor which activates the growth of tissues. In accordance with this law, it is possible to induce the development not only of muscles, skin, and bones, but even blood vessels. And this is a field of angiology. For example, it is known that with various disruptions of the permeability of blood vessels in the extremities it becomes impossible to amputate. Can this feasibly be prevented? Yes, it is possible to "grow" a thick network of new vessels.

There are other examples as well. For instance, it has been and still is believed that after trauma to the spinal cord an individual is doomed to immobility and being an invalid. Now we have shown in experiments on dogs that a damaged spinal cord can be rehabilitated. This now is an incursion into neurosurgery. We are even coming into contact with obstetrics. We have developed a method of treatment which makes it possible for women with narrow pelvises to give birth normally. And this is done with minimal surgical intervention.

As soon as it becomes necessary to create scientific-research medical complexes, they should be put together at the interface of different sciences. But the main thing is that highly qualified specialists from this or that predominant discipline be selected for such centers.

Of course there will be a real result only in a case where all of this obtains a solid foundation, a clear future. And this is possible with the appropriate attention from the higher instances, including the USSR Academy of Medical Sciences.

Order is now being imposed in all spheres of our lives. There is no question but that it will also be imposed in the endeavors about which I want to speak my mind. And this will help us advance more rapidly toward new achievements in medical science and practice. This will mean still more active help to our people in their conscientious labor.

12255

CSO: 1840/433-A

CHILDHOOD ALCOHOLISM

Moscow MOSKOVSKAYA PRAVDA in Russian 16 Feb 86 p 3

[Interview of Academician of USSR Academy of Medical Sciences
M. Studenikin, director of Scientific Research Institute of Pediatrics,
USSR Academy of Medical Sciences, by I. Lozovskaya]

[Text] [Question] Various statistical data have appeared recently about alcoholism and its consequences. Specifically, there are also those who state that there are many children in the country who are moderately retarded or semiretarded. Are these data valid or not.

[Answer] Fortunately, no. However, the general situation with alcoholism and its consequences to children is not only not optimistic but also causes great alarm. Primarily because from 3 to 6 percent of those who drink become alcoholics. Contact with alcohol is dangerous at all phases of human development and may be manifested in disturbance of all components of health: physical, mental and social. These disturbances depend on which period of development of the organism he is affected by alcoholism. Dystrophic changes occur in the brain, heart, liver and other organs. Death is also possible, especially with elevated individual sensitivity to alcohol. And here is the dangerous thing: the extent of this sensitivity cannot be known beforehand and this means that a catastrophe cannot be prevented. Metabolism is disrupted with chronic alcoholism and changes in the protective forces of the organism occur.

[Question] Can you give more details about the effect of alcoholism on heredity.

[Answer] A series of experimental and clinical investigations on the effect of alcoholism of the father on the development and growth of children has been conducted at our institute. The investigations studied children of fathers who become drunk frequently, they studied children who were conceived during the initial period of alcoholism and children of fathers with marked alcoholism. Finally, there is a fourth group of children--these are children of fathers who abstained from alcohol over a period of 3 years.

The results show that alcoholism of the father results in mental retardation of children: they have reduced memory and attention, they have poor speech and imagination and they are passive. These children can usually be taught only in auxiliary schools. The degree of mental retardation of the children is proportional to the length of the father's alcoholism. A 2-3 year break in abuse of

alcohol under conditions of restorative and antialcoholic treatment considerably improves the prognosis of the child's health. An unfavorable outcome of pregnancy, disturbancy of the development of the fetus, resorption of the embryo and miscarriages are usually noted among women who suffer from alcoholism.

[Question] Is alcoholism hereditary.

[Answer] Numerous investigations of Soviet and foreign scientists have shown that alcoholism itself is not hereditary, but a predisposition to alcoholism is transmitted.

6521

CSO: 1840/1086

BRIEFS

AUTOMATED HEALTH EXAMINATION--An electronic therapist has been designed and developed at the All-Union Scientific Research Institute for Automation of Management in the nonindustrial sphere. The automated system, developed for mass preventive examinations of the public, is capable of completing up to 200 medical examinations per day. The examination, which the machine conducts, is combined with data of previous examinations stored in the computer. Thus, an entire "movie" that shows the dynamics of changes in the organism is formed. This permits very early detection of disease. [Text] [Moscow NTR: PROBLEMY I RESHENIYA in Russian No 12, 6-18 Nov 86 p 6] 6521

X-RAY MACHINE--A biological synchronizer is a device for switching on X-ray equipment automatically to illuminate the organs of the chest cavity during extreme phases of respiration and was developed at the Scientific Research Institute of Medical Radiology, USSR Academy of Sciences (Obninsk). The device operates from a sensor on which a stream of expired air acts. The disadvantage of ordinary roentgenography of the lungs includes the possibility of precise location of inspiration and expiration phases. As is known, the survey is made at moments determined by the laboratory technician's instructions: "inhale," "exhale," "don't breathe" and so on. In this case the correctness of completing this task is evaluated subjectively. It is thus impossible to obtain identical photographs that relate to different phases of respiration and to evaluate their basic parameters quantitatively. The proposed device, which has been named the Biosynchronizer, completely eliminates these deficiencies. The appearance of disturbances of the respiratory organs becomes more adequate, which contributes to early diagnosis of diseases. The biosynchronizer is produced serially by the Kiev Association Medapparatūra. [Text] [Moscow NTR: PROBLEMY I RESHENIYA in Russian No 12, 6-18 Nov 86 p 6] 6521

CSO: 1840/1086

PUBLIC HEALTH IMPROVEMENTS IN BASHKIR ASSR

Moscow PRAVDA in Russian 2 Oct 85 p 3

[Article: "To the City for Treatment"]

[Text] M. Mullagalyamov, deputy chairman of the Bashkir ASSR Council of Ministers reported to the editorial staff that the facts set forth in the article "To the City for Treatment" (14 July of this year) did take place.

In order to improve medical and pharmaceutical care for the population of the republic, a complex program has been devised for the further development of public health care and for the establishment of a dispensary system for the population for 1985-1990, a program which reflects fully the problems raised in the article. Using capital investments and funds from industrial enterprises, kolkhozes and sovkhoses, future construction is planned for hospitals, dispensaries with 8,225 beds, polyclinics for 14,000 patient visits, 22 rural medical outpatient clinics, 131 dispensaries for livestock complexes, 90 obstetric-midwife stations and 66 pharmacies.

The state of public health in Dyurtyulinskiy Rayon was reviewed jointly with representatives of the RSFSR Ministry of Health. Results of this review were examined by the Bashkir ASSR Council of Ministers and by the Joint Board of the Bashkir ASSR Ministry of Health and Pharmaceutical Administration under the Republic's Council of Ministers. A key assessment of the medical and pharmaceutical care provided to the rural population was made. In the course of the discussion, along with the shortcomings noted in the article "To the City for Treatment," other omissions as well, were noted on the part of the leadership of the Dyurtyulinskiy Rayon Hospital, the Republic Clinical Hospital, and the Ministry of Health and Pharmaceutical Administration in the health care provided the rural population.

For lax supervision of the work of the rayon network of institutions and for shortcomings in providing medicines to the population, reprimands were given to A. Turyanov, deputy minister of health, M. Petrov, chief physician of the Republic Clinical Hospital and E. Guskovoy, deputy chief of the Pharmaceutical Administration under the Bashkir ASSR Council of Ministers.

For lack of proper supervision in the hospitalization of patients and for shortcomings in the utilization of transport of the department "First Aid," a reprimand was given to F. Gaisin, chief physician of the Dyurtyulinskiy Rayon Hospital.

A brigade of specialists from the Ministry of Health, the Republic Clinical Hospital and the Pharmaceutical Administration has been dispatched to eliminate shortcomings which have been revealed and to render practical assistance in Dyurtyulinskiy Rayon. Measures for improving health protection for the population of the republic have been taken under strict control.

13079

CSO: 1840/183

MEASURES FOR IMPROVING PUBLIC HEALTH

Moscow PRAVDA in Russian 14 Nov 85 p 2

[Article under the rubric "After the Criticism:" "Concrete Measures Have Been Taken"]

[Text] At a session of the Board of the USSR Ministry of Health shortcomings were discussed which had been noted in the articles "The Sorrows of Dr. Krilov," "To the City for Treatment," and "When There are Many Masters," published in this newspaper on the 11, 14, and 18 July. It was acknowledged that proper and timely questions had been raised in these articles about the necessity for further improvement in medical care for the population.

By a resolution of the board, concrete measures were set for the development of the material-technical base for health institutions, for bringing their medical cadres to full strength, for better supplying of medical equipment and providing for its optimal use, for providing better supplies of pharmaceuticals and for raising standards and quality in rendering medical care.

The board charged RSFSR Minister of Health N. Trubilin with eliminating these noted shortcomings, with the unconditional fulfillment of the 1985 plan for putting health institutions into operation, with examining in a month's time the soundness of plans for the distribution of medical equipment and pharmaceuticals and with taking urgent measures in the improvement of medical care.

The ministers of health of the union republics were charged with ensuring the full development of resources allocated for capital construction, with raising the quality of medical care and with paying special attention to the implementation of those measures directed at reducing morbidity in the rural population.

The Board of the USSR Ministry of Health singled out for alleged shortcomings M. Kamalov, minister of health of the Bashkir ASSR; N. Dolgushin, the head of the Orenburg Oblast Department of Health; and V. Podolskiy, head of the Vologda Oblast Department of Health. V. Desyatkin, chief of the Bashkir Republic Pharmaceutical Administration, was reprimanded for unsatisfactorily supplying the rural population with medicines.

The results of the inquiries were also discussed at a meeting of the ispolkom of the Vologda Oblast Soviet of People's Deputies, at a meeting of the Bashkir ASSR Council of Ministers, at the Orenburg Oblast CPSU Committee and at the boards of the Vologda and Orenburg Rayon Departments of Health and the

Bashkir ASSR Ministry of Health. Concrete measures have already been taken on the majority of questions raised in the published articles. For alleged shortcomings in their work, disciplinary punishment was imposed on a number of leading workers of public health organs and institutions. A. Turyanov, the deputy minister of health of the Bashkir ASSR, M. Petrov, chief physician of the Republic Hospital and A. Melnikov, head of the Buzulukskiy City Department of Health were also reprimanded.

13079

CSO: 1840/183

LENINGRAD FIRE SAFETY VIOLATIONS

Leningrad VECHERNIY LENINGRAD in Russian 18 Dec 85 p 2

[Account of an investigation by a team consisting of L. Tukach, engineer of the Vasileostrovskiy Rayon Housing Administration, D. Menshikov, chief of the UPO (expansion not given) department of the Main Administration of Internal Affairs of the Leningrad Oblast and City Soviet Executive Committee, N. Lobanova, rayon inspector of the State Fire Inspectorate, and G. Izrantsev from VECHERNIY LENINGRAD: "Until Misfortune Strikes"]

[Text] Statistics regarding fires are alarming. There have been about 3,000 fires in Leningrad since the beginning of this year. During the past 11 months, more than 130 people died from fires and about 200 received burns, some of them serious. Material losses from fires reached 1,900,000 rubles.

The newspaper VECHERNIY LENINGRAD is systematically conducting investigatory "raids" to check on fire safety in the city's residential housing. The participants have now familiarized themselves with how such work is being carried out in the Vasileostrovskiy Rayon.

For a start, it was decided to inspect the building where Housing Section 2 [Zhilishchno-ekspluatatsionniy uchastok) of Housing Trust No. 1 is located. It was thought that, here, the smallest violation of fire safety rules would be immediately eliminated by the workers of this section. But in every entrance of Building No. 11 on Vasilevskiy Island's Bolshoy Prospekt, one violation was literally piled on top of another.

In one, a storeroom for baby carriages had been built under the staircase. This, despite the fact that, several years ago, there was a fire at precisely this spot. In another, there is a heap of paint cans, foam rubber and other highly flammable materials.

In a third, there was a "pantry" for the storage of household items. It was blocking the reserve fire exit. Only after our insistent efforts to determine from N.M. Goncharova, master of the 6th Section, who the "owner" of room was, did she finally admit:

"Anatoliy Mishinev, a tractor operator in our Housing Section 2."

"I can't count the times we have turned orally and in writing to the housing section and to other levels with the request to put the entryway in order," says A.F. Zelkovskiy, a resident in this building, "and still without results."

One more entryway. A representative of Trust No. 1, S.E. Kerginskiy, is working with an acetylene torch.

"Do you have a technical permit allowing you to carry out such work?" we ask.

"No."

"But, why? Why don't you have a bucket of water in case you start a fire, or a protective asbestos cloth? There's a wooden partition right next to you, with a storeroom behind it."

We also want to mention the fire that broke out in May of this year in a dormitory at Leningrad State University imeni A.A. Zhdanov, located in Building No. 66 on Line 5. They were scornful of fire safety questions there. On the first floor of the stairwell they kept cans of paint and solvents, which they used to pour into smaller containers here. There were also empty containers of the same substances there. In this serious fire--they used fire ladders to save people--150 square meters of roof were damaged. And a night fire in the basement of Building No. 14 on Line 15 in October almost cost some of the residents their lives--smoke from burning and even smouldering synthetic materials is extremely dangerous!

But perhaps violations of this sort exist only in this building?

Master of Section No. 5 of Housing Section 2, L.V. Salatova, conducts us to Building No. 2 on Line 2.

"Here, everything is in precise order," she says.

The attic of this building was indeed clean and orderly. But...there were two large cabinets filled with cans of paint.

"Do you know that it is forbidden to store these containers in attics?"

"Well, they put them here very recently."

"We'd better go to another building," suggests master of the 2nd Section of Housing Section 1, V.V. Marchuk, "on Line 7, let's say, to Number 4."

We didn't comment.

However, here too, there were more than a few violations of fire safety rules. Attic rooms were not closed. Someone had hauled kitchen appliances out into the stairwell, blocking the passage.

The equipment of the Sevmorgeologiya Arctic Ocean geological survey expedition, valued at hundreds of thousands of rubles, was being kept in the basement of the second entrance in Wing No. 2. And all this stored in space where the most elementary rules of fire safety are being violated. In one of the storerooms, for example, an electric light was almost touching a rack of sheepskin coats. Fire extinguishers were missing their "basic data": Nobody knows whether they are in good order, or not. Here, too, in another small storeroom, behind a wooden partition, there are enormous containers of flammable liquids. And what will happen if the concentration of fumes reaches a critical level?. There are neither ventilators nor windows here.

We question the warehouse man: "What number do you call to reach the fire department?"

"It's written there," he answers, walking toward the desk.

"And from memory?"

03...No. I don't remember."

And, indeed, every school child now knows that to report a fire it is necessary to call the number 01.

The participants in the raid investigation were extremely bothered by the fact that the storage area is located in the basement of a residential building. If something goes wrong, the residents of this entryway will have, as they say, no way out at all.

The raid team also visited several other addresses. One of them is listed in a special register of the inspectors at the State Fire Inspectorate. In Building No. 5 on Malyy Prospekt (It belongs to Residential Trust No. 3), so much rubbish, garbage and various kinds of trash has piled up in abandoned and unlocked rooms on the first floor that a fire can break out at any minute here also.

Prospekt KIMa No. 4. Food Store No. 29 of the Vasileostrovskiy Rayon Food Trade Trust (raypishchetorg) is located here, on the first floor of a building containing almost 1,000 apartments. In the store's yard, along the walls, stacks of wine and vodka crates tower almost to the balconies of the second floor. There are mountains of crates next to every entrance and next to the protective shields of 380 volt electric lights.

"These crates are needed for a dishware reception point," the store's director, F.V. Ponomarev, says calmly.

"If these wooden 'mountains' catch on fire," notes one of the raid action's participants, "the flames will leap up to the fourth floor. They could ignite the window frames and the blinds of the apartments. The fire could become very large. Do you understand this, Firs Vasilyevich?"

"I understand."

"And the guilty one will be you, as the person responsible for fire safety."

"But what can I do?"

Well, first of all, obviously, not accumulate such an enormous quantity of crates. And thought should also be given to arranging a special area for them. To store containers under the balconies and windows of the residents, to endanger their health and lives, is not permissible.

"Recently," says the chief of the Fire Department's 8th Militarized Detachment, Lieutenant Colonel V.M. Kaunin, "the fire safety workers of Vasileostrovskiy Rayon have been doing a good deal with regard to fire prevention in residential housing. The specialists of many housing sections approach this work conscientiously and with an awareness of their great responsibility for protection of socialist property. I cannot fail to make special mention of the workers of Housing Section No. 4 of Trust No. 1 (Senior Master E.A. Matveyeva), Housing Section No. 11 of Trust No. 2 (Master L.F. Frolova), Housing Section 22 of the same trust (Senior Master M.V. Yefremova), and Housing Section No. 7 of Trust No. 3 (Senior Master G.A. Kripko)."

But, unfortunately, there are still workers of housing administrations and organizations who are giving insufficient attention to such important preventive work as fire safety. This was also confirmed by the regular raid of the newspaper VECHERNIY LENINGRAD.

13032/9835

CSO: 1840/1073

COMPUTERIZED MEDICAL DIAGNOSTICS CENTERS

Moscow IZVESTIYA in Russian 5 Feb 86 p 3

[Article by S. Tsikora, Izvestiya correspondent, Kiev: "A Polyclinic without a Queue; a Network of Computerized Medical Diagnostics Centers is Created"]

[Text] The geography of innovation is this: three centers were organized in the RSFSR and five in the Ukraine. By the end of this past year, centers at Ulyanovsk and at Penza, Lvov, Dnepropetrovsk and Ternopol were receiving patients. Equipment is being set up in Magnitogorsk, Kharkov and Kiev.

I shall begin with the fact that these new medical establishments were constructed exclusively as facilities of large-scale industrial enterprises. Even some similarity to a queue of those wanting to have their own automated diagnostic centers arose. The names of acknowledged giants of our industry appear first on the list of those waiting in line. They include the central concentration combine in Krivoy Rog, the Metallurgical Plant imeni Petrovskiy and the Machine Building Plant imeni Lenin in Dnenpropetrovsk, AvtoVAZ, the Yuzhdizelmash Production Association at Tokmak, and the Schetmash plant at Kursk.

What kind of innovation attracted the attention of the economic planners?

It will be easier to answer this question if we draw on the experience of the first experimental computerized medical diagnostics center in the USSR built three years ago based on the medical-public health department of the Zaporozhe Kommunar Automobile Plant. The center was organized, it may be said, by virtue of production necessity. The fact is that mandatory medical prophylactic examination of all workers is considered as the requirements of the norm of measures for industrial hygiene. AvtoZAZ also was on this list. Also at thousands of other enterprises, all their personnel once a year must undergo examination by doctors of many specialties. A minimum of four to five days is optimal for each. As the result, a giant plant did not work at all for one week per year.

Now everything is different at the Zaporozhe AvtoZAZ. A complex medical examination is done in two to three hours per person. Such is the efficiency of a computerized system, which was developed and introduced at this enterprise by a group of specialists headed by A. Sitnik.

A. Sitnik now works in Kiev and is in charge of the computer center of the UkSSR Ministry of Health. This organization is engaged in the introduction of computerized diagnostic methods in the practice of public health in the republic. Economists were so confident in the Zaporozhe system that all eight computerized medical diagnostics centers organized in this country this past year were built according to the system and principles established by specialists in the Zaporozhe model.

The effect of the introduction of similar systems is achieved primarily because of a drastic decrease in the times required for a medical examination (from 5 working days to 4 hours), a reduction of repeated visits to the doctor by the patient, and failure of the traditional practice of medical documentation. Now, the filling out of the medical chart of the patient, which had taken up to 40 percent of the working time of the doctor and nurse, is almost completely computerized. The computer has taken on the questioning of the client and the compiling of the primary medical document. It participates in the mathematical treatment of cardiograms and data of different analyses as the right hand helper of the doctor.

Doctors at the computerized diagnostics centers began to work in a system of "free times" during a large part of their working day--doing only that work which was not under the control of the computer. After a change to work in tandem with the computer, a doctor can accept not 20-25 patients, as before, but 100. A team of 9 doctors participating together with the computer in a prophylactic examination after the change met the norm of the whole polyclinic, based on 1000 visits. Compared to the possibilities of the usual public health subdivision, such results seem simply fantastic.

But in this, the work of medical personnel is also of a specific nature, which quantitative indicators here are taken into account only under conditions in which the quality of the work does not suffer, which in the satisfaction of "maximal coverage" does not bring in the principle of an individual approach to each patient.

At what level of quality of diagnostics then did the medical diagnostics computer center work?

Do not count the commissions verifying this direction of their work. The average results are these: the physician aided by the computer sees three times more patients with the early stages of cardiovascular diseases and 10 times more oncological patients, and several times more patients with gastrointestinal illnesses.

Namely because of this, founders of the computerized medical diagnostics centers most of all are proud of the qualitatively increasing direction of the evaluation of the state of health of the people. And although in the first stages, this reliability strongly spoils the statistical indicators of "medical well-being", the absolute objectivity of the data is very important. Because it aids in the solution of an important task posed before the doctor today, not only to attain general prophylactic medical examinations for the population of the

country but also actively influence the recovery of persons with the early stages of diseases.

Such a prophylactic medical examination means in practice a reliable evaluation of the health of each person during medical examination of all.

Computerized medical diagnostics centers make it possible for the doctor to regulate the state of health of large groups of the population. In any case, the centers now operating already partly permit medical personnel to manage this task on the level of the large-scale enterprise.

And here we approach the question: if computerized medical diagnostics centers are so good and advantageous, why are there so few of them today? Furthermore, if the state of health of a person is evaluated so rapidly and reliably at the centers, how then is the composition of the queue for introduction of the new technology to be explained? The first of them in line--pay attention--are not the polyclinics of the rayons and the municipal health departments (the basic participants in the prophylactic medical examinations) but the industrial enterprises.

The medical health departments of large-scale enterprises seemed to be more prepared for work with computerized medical diagnostics systems than rayon and city polyclinics. The circumstances which permitted them to emerge as the leader was that a computer center is now mandatory at each large plant. The appearance of one more computer at it (even if it is specialized for medical purposes) does not require the organization of an additional technical maintenance service. Namely, the difficulty of organizing an appropriate service and technical maintenance entering into the structure of a medical diagnostics system until now has hindered the establishment of computer centers in polyclinics of rayons and cities.

Another important factor is finances. A bank of a diagnostics computer center equipment costs several hundred thousand rubles. For areas of public health, this sum is considerable. The rayon public health service, let us say, will have to refuse many patients if it would dare to acquire a diagnostic system. At the same time, at a large scale enterprise, as financial experts say, this sum can be found. And when economists have recognized the working days actually to be saved by means of such centers, they have begun to act decisively and rapidly. The opening of eight new centers in one year is evidence of this, and the long list of production organizations wanting to acquire an analogous medical technique confirms that interest in innovation persists.

But most important, perhaps, is that the capacity of one computer entering the diagnostic system is completely sufficient to handle several more polyclinics in parallel--rayon or large city. What is the result of this? Completely acceptable and modern solutions for quality prophylactic medical examinations of inhabitants of a rayon and city can be found where there is a large-scale enterprise. All will depend on how and by whom this matter is taken up.

12410

CSO: 1840/385

23

PRAVDA VOSTOKA CRITICISM OF MEDICAL INDUSTRY

Tashkent PRAVDA VOSTOKA in Russian 18 Feb 86 p 3

[Letters to the editor under the rubric "Echo"]

[Text] Letter to the editor from K. Soliyeva, Namangan: "'Five Minutes'"
Takes 2 Hours"

A very topical discussion has begun on the pages of PRAVDA VOSTOKA concerning the indifferent, sometimes contemptuous attitude toward people that certain workers in medical establishments have. The articles "Diagnosis: Malpractice", "Only One Case", "Who Decides on a Pediatrician?", "The Doctor Is Receiving..." and others really hit the nail on the head--indifference and bureaucratism. I thought that now things would be brought into line in our Namangan Women's Consulting Hospital No 1. But this did not happen.

Seeing at the entrance a sign which said: "Receiving Patients From 0800 Hours in the Morning to 2000 Hours at Night," I rejoiced at this policy: I would have time to see the doctor before work and not have to ask the management for permission. But going into the polyclinic the next morning my hopes were shattered. Another sign, showing the location of offices and the office hours of sectional physicians informed me that office hours began at 8:30. Oh well, I thought, I will still have time if I ask for a half-hour at work.

The next day I arrived at 8 in order to be first in line. But five women were already sitting there. I waited 1 hour, 2 hours, and the office did not open. I asked a nurse:

"Where are the doctors, when will the office open?"

"I don't know," she answered, "all the doctors are on 5-minute breaks."

The office opened after 10. The clients waited patiently. They are used to this sort of attitude.

Then, a little while later, I had to come back.

This was on 30 January. I asked for an hour off from work. I arrived at 8:30. Again there were five in line. By 10 another 20 people had collected, most of whom, like me, had asked for time off work, but the office still did not open.

"Where have the doctors disappeared to?" we asked a nurse.

"The doctors are in a meeting," the nurse replied.

Finally, at 10:20, the office opened. Dr. O. V. Tsoy saw the crowd of patients, but began receiving acquaintances of his, regardless of the line, which caused justifiable indignation in those still waiting.

The next time, on 6 February, the office opened at 9:40. And it is this way every day. It is the same story in the treatment office. You wait and you wait and then they tell you:

"Don't fret, sterile instruments will be here by only 11."

Women who are receiving treatment in a consultation are not given sick passes. But the treatment goes on for at least 10 days. Every day you wait 4-5 hours at the door of the treatment office. How can this be explained at work?

I would think that any meetings, conferences, "5-minute breaks," and other internal affairs of workers at the polyclinic should not disrupt the established operating hours. The collective should be a little more concerned about the interests of working people, and not about their own functions.

Editor's Reply

If this sort of "order" prevailed only in that polyclinic, it would not be worthwhile printing K. Soliyeva's letter. But it is this way in many polyclinics. Is it necessary to write about each medical establishment on this topic? Probably personnel everywhere should critically assess their own work and do what is necessary to eliminate patients' complaints. But if in some places people are not able or not willing to impose order themselves, we are prepared in the future to name specific individuals who are guilty of bureaucratism and indifference. Our readers are our allies in the fight against them....

Letter by R. Bariyev, Bukhara: "I Am My Own Doctor..."

Esteemed editors! I have a record of almost 40 years of productive service. During all that time I have worked in only two places. I do not like to be sick. But what can you do when you have to go to a doctor? This happened to me in January. In the polyclinic they prescribed hospitalization for me. I arrived at the hospital, which is next door to a textile combine.

"Go up to the fourth floor, to Dr Rakhimova," they told me in the receiving room, "if she agrees come back here and we will give you clothes."

I went to Rakhimova. I stood in front of her, stooped with pain. She found some sort of deficiencies in my prescription and sent me away. Three days later I was at the hospital again, this time with a corrected prescription.

"We don't have a single place open," she told me on the fourth floor.

I had to treat myself: someone advised me and that is what I did. I was on sick leave from the 7th to the 19th of January. Possibly this period would not have been so prolonged if I had been treated by specialists. Even so, I did not get a full recovery.

I am a welder, I have a lot of work to do and there is no time to write complaints. But I write to you in order to remind the people in white smocks of their sacred duty. I write with the hope that this will not happen to anybody else. The times are hard right now. A course of intensive development has been undertaken. We must work, we cannot waste hours, days, and weeks. I read an article on medical topics in PRAVDA VOSTOKA and I hope that things will improve in this sector.

Letter to the editor from G. Abdullayeva, housewife, Karshi: "Tip for an Operation"

After reading "Only One Case" in PRAVDA VOSTOKA, about the ethics of the physician and the reactions of a patient, I started thinking. Doctors are the most respected people in our country. Human lives depend on their conscientiousness, unselfishness, humanity, and professional skill. And it is very sad that some of the people in white smocks are trading in these qualities for money.

Once my neighbor came to me upset about something. She had to get 500 rubles immediately. We talked. It turned out that her brother had had an auto accident in the mountains and had been brought back in a very grave condition. An operation would be needed in a day. The night before, when my neighbor visited her brother, the doctor treating him asked her on the spot to loan him the above-mentioned sum for a certain period of time and promised that the operation would be a success. "I know that he will not give my money back, but I have to give him that amount at all costs--my brother's life is hanging by a thread." I talked my neighbor out of taking this step. A little while later, the patient was operated on, and the operation was a success. My neighbor's brother has already recovered.

This question tortured me for a long time: How could a doctor ask for a "loan" from a patient's relative the night before his operation? Then suddenly I found out:

"You have to understand," my neighbor admitted, "on the day my brother was in the accident, I myself put 100 rubles into the pocket of the doctor treating him. He did not want to take it but I asked him, I begged him to take it."

My neighbor became silent. I thought that probably we ourselves are corrupting doctors, making it more likely that some of them will demand a bribe.

Letter to the editor from A. Astakhova, Tashkent: "By Proper Names"

The article "Only One Case" hit a nerve. It is so often necessary to consult with the people in the white smocks. I have most frequently encountered good doctors and I am grateful to them. But I am not talking about medical qualifications now, but the human aspect. So I want to put a question to the doctor the article was about: Why do you send a patient to a committee which you yourself did not trust (or that there were reasons not to trust). She says that she would have undertaken continued treatment. What is she talking about, if according to her conclusion the patient was not sick at all and there should be a reexamination of the decision of the committee, on which,

she believes, there was no literate neuropathologist (what then, are they giving medical degrees to illiterates?). It seems to me that the patient is sincere. And there is no question that the doctor is insincere who hinted at an acquaintance "up high."

The 26th Plenum passed a resolution to call things by their proper names. Some people, unfortunately, think that this does not refer to them. They are very much mistaken.

12255

CSO: 1840/1092

BRIEF

POLYMER FILM BANDAGING MATERIALS--The Ministry of the Medical and Microbiological Industry has examined the article by A. Chernichenko, published in "Izvestiya" No 298 1985, "On Cotton, Bandages and Percentages" and thinks that the questions raised concerning the savings effected with cotton fabric as the basic material for bandages and its substitution with special polymer films are important and deserve intent attention. The criticism, addressed to the sector, concerning the slow rates of mastering the production of bandaging materials based on sticky polymer films is completely justified. Indeed, the production of these goods for medical use has been relatively low in the sector during the current five-year plan because of the lack of essential production capacities at the enterprises which are in charge. For the 12th Five-Year Plan the scientific institutions and enterprises of the sector have planned a significant increase of the work volumes for developing and accelerating the assimilation into production of the new bandaging materials based on sticky polymer films; this will reduce the use of cotton fabric and expand the assortment of bandaging materials. Liquid film-forming polymer compositions in aerosol packaging will hold an important place in the development of modern bandaging materials. For the practical solution of problems relating to the acceleration of development and assimilation of the new bandaging materials, the sector has worked out and coordinated with the ministries and subcontractors a specific comprehensive program for the establishment and development of a domestic production of medical materials based on sticky polymer films. [By L. Telegin, deputy minister] [Text] [Moscow IZVESTIYA in Russian 6 Jan 86 p 3] 12525/9835

CSO: 1840/329

CHILDREN WITH ENDOCRINE PROBLEMS

Frunze SOVETSKAYA KIRGIZIA in Russian 13 Feb 86 p 4

[Article by B. Abdyldayev, chief nonstaff children's endocrinologist of the Kirgizian Ministry of Health: "Operating on the New System"]

[Text] Day by day, before our very eyes, children's health care is improving --the death rate from infectious diseases has been reduced, the number of serious manifestations of many diseases has decreased. At the same time, as a result of the improved well-being and nutrition of the population, a group of diseases which previously were encountered fairly rarely has moved to the forefront. They include primarily disruptions of the endocrine system.

Today all the highly developed countries, including the USSR, are seeing an increase of these diseases among both adults and children. According to data of the World Health Organization, worldwide the number of persons suffering from sugar diabetes is about 30 million, and it is increasing constantly. Among these people, 5 to 7 percent are children. One of the main problems of practical health care in our republic is studying the spread of these diseases in children and developing methods for early diagnosis and treatment of them. It is perhaps unnecessary to demonstrate the importance and timeliness of this work. But despite this endocrinologists meet time and again with a number of unresolved problems. Above all, the work, the continuation of scientific research is being held back by the absence of a children's hospital for patients with endocrine pathology. For example, children suffering from sugar diabetes are hospitalized in ordinary somatic departments, where, naturally, it is impossible to create the necessary conditions for treating them. There is also no special laboratory. And yet research in children's endocrinology is connected with radioimmunological methods which cannot be carried out under ordinary conditions.

The republic's lack of a unified methodological center for children's endocrinology does not allow us to unite all specialists and develop a unified strategy in the treatment and dispensary observation of children. For example, frequently children with disruptions of the endocrine system requiring surgical treatment go immediately to the surgery department, although they require thorough conservative therapy before the operation. All of this occurs because we do not have a well-designed system of children's endocrinological service. And starting one requires organizing a unified department to serve sick children (especially those with sugar diabetes) of the entire republic. It has become necessary to create offices for treating children with endocrine pathology in all oblast centers.

Scientific-research institutes should be instructed to devote more constant attention to organizing thorough examination of these children.

In Frunze, for example, there are only two pediatrician-endocrinologists. Of course, they cannot take care of the entire children's population of the city.

In our view, since it is impossible at the present time to expand the ranks of children's endocrinologists, we must organize systematic training for district pediatricians. In order to do this, it is necessary to create and open up a cycle on children's endocrinology under one of the departments of Kirgiz State Medical Institute. It is also necessary to establish comprehensive ties between the children's endocrinologists and district pediatricians. In accordance with the methods we have developed, each district physician should register all children with "risk factors" in his district. Whereas before a district pediatrician sent children to the endocrinologist only as needed, now he takes an interest in getting all children in his section into a more healthy state. In turn, the endocrinologist used to do preventive exams selectively, mainly encompassing organizational collectives, while now he goes directly to sections of the polyclinics.

In connection with the absence in physicians' practice of simple and generally available express methods of early diagnosis of the most widespread endocrinological diseases in children (sugar diabetes, obesity, pathology of the thyroid gland), physicians should institute the examination of all children under hospital care who have "risk factors": inherited predisposition, medical history, large weight at birth, being tall.

Children's endocrinological service faces important and difficult tasks which can only be resolved with the help of the republic's Ministry of Health, the leaders of children's polyclinics, local organs of government, and the public at large.

12255

CSO: 1840/1120

CITY PLANNING NEEDED TO IMPROVE FRUNZE

Frunze SOVETSKAYA KIRGIZIA in Russian 7 Jan 86 p 3

[Article by Yu. Grebennikov, head of a special research group of the Kirgiz Ministry of Health: "The Capital: What Will It Be Like?"]

[Text] The Plan of Basic Directions of Economic and Social Development of the USSR stipulates "a further rise in the well-being of all strata and social groups of the population, and profound changes in the sphere of labor and people's living conditions."

Much is being done toward these goals in Frunze. But I would like to stimulate interest in the "obstacles" which lie in the path of accelerating the processes of shaping our capital from the position of the communist future. The overwhelming growth of the population in the capital as compared to the initiation of new social, cultural, and consumer projects is making itself felt: in the availability of schools, hospitals, and public feeding enterprises, the city has in recent years lost the previously attained levels.

More than 60 percent of all industrial enterprises of the republic are already concentrated in Frunze. The city has begun to suffocate from the lack of working hands, from the gases and dust in the atmosphere. It is true that in recent years we have succeeded in reducing the rate of pollution of the atmospheric basin of the capital. But the increasing automobilization of the city, if effective measures are not taken, can clearly reduce to nothing all of the positive shifts observed.

We were all witnesses as to how durable housing and sporting areas were unwarrantedly pulled down, market places were disassembled which had a capacity which could still have served the city for more than one decade yet, and projects were built outside the plan which did not have priority importance.... In short, on certain questions the Gorispolkom did not show itself to be a truly good manager, capable of guiding the development of the city in the necessary direction. We also did not escape from libertarianism on the part of certain managers.

The situation continues to worsen with regard to a number of problems. For example, almost nothing has been done with plans to get harmful production facilities out of the city, and no work is being done to convert automotive transport to harmless forms of fuel. The zone just outside the city, which is

chiefly intended to be a protective barrier, a healthy place, is being built up in a chaotic fashion, and for tens of kilometers around the city the territory is littered with the wastes of industrial production. But the state of health of the inhabitants is precisely the criterion by which we may judge the social well-being of the city, and from the position of this main criterion to construct all plans.

Unfortunately, the indicator of the barometer of health of the population of Frunze now points to "unsatisfactory" on the scale. The number of people per 1,000 inhabitants who sought medical aid in the capital city in 1984 exceeded the republic average by a factor of 2.9, those with diseases of the cardiovascular and gastrointestinal systems by a factor of 4, and respiratory organs by a factor of almost 3! This is the negative side of the dialectics of industrialization and urbanization, if appropriate shields are not erected against it.

Clearly, we must begin by drawing up a scientifically founded plan of city planning. Here we cannot get along without sound planning organizations, and architects, medical workers, and builders are just as indispensable. It has become acutely necessary to carry out large-scale sociological research. But, whereas in all republics of the Central Asian region branches of all-union institutes of social problems and labor are already operating, we have no such branch, despite the existing possibilities.

The time has come for the population to discuss more frequently the building plans of the city, and questions of transport, medical, and cultural service.

Hardly anyone challenges the opinion, for example, that residential spaces should be built with complete city-planning complexes, including, aside from residential dwellings, social, cultural, and consumer buildings: schools, kindergartens, trade enterprises, polyclinics, automatic telephone exchanges, and treatment and preventive health centers.

But a well-developed plan can only be brought to life by relying on the powerful factor which capital construction should be. Currently leaders of housing construction combines are blaming all misfortunes on the Gorispolkom Administration of Capital Construction, while representatives of the Gorispolkom, conversely, bemoan the poor work of the housing construction combine. But these mutual recriminations do not help matters. But the situation which has developed is more the result of bad luck than the fault of either party. If the housing construction combine must deal with 10 clients, the Gorispolkom Administration of Capital Construction must deal with 38 general contractors.

But another sort of work experience does exist! In the cities of Poti, Ryazan, Volzhsk, and a number of others, as well as in the Ukraine and the Baltic region, the Gorispolkom Administration of Capital Construction is the only client of residential construction. Local soviets of these cities, by creating a unified general contractor, have united the forces of enterprises of various departments in order to resolve general problems: engineering, construction, and supply problems. So why does the city of Frunze not take an analogous course?

The concentration of now substantially increased volumes of capital outlays in combination with the sharply increased potential of capital construction will make it possible to abruptly change the social situation in the capital city.

So then, economical, comfortable, having a maximum of conveniences for its inhabitants, conditions for all-around satisfaction of their needs, as well as for developing human capacities, improving their health, and being in harmony with the environment--all of this is what a modern city should be. This is the task that local organs of government must resolve. We must not stand still but rather go on to fruitfully solve problems of city planning and design.

12255

CSO: 1840/1120

OPTOMETRISTS: A NEW CLASS OF MEDICAL WORKERS

Moscow VECHERNYAYA MOSKVA in Russian 25 Feb 86 p 2

[Article by R. Bagiryan: "New Health Care Service"]

[Text] How do you get glasses? They must be prescribed at a visit with an ophthalmologist, everyone will answer, and the physician will select the lenses, determine the distance between the centers.... But this way is not all that great. In the first place, in front of the ophthalmologist's office, we see, as a rule, a line. But getting the right glasses takes 30-40 minutes, sometimes even more than an hour. At the same time, this is not the ophthalmologist's main work. His most important task is diagnosing diseases in time and treating them.

In a number of socialist countries--the GDR, Czechoslovakia, and Hungary--the problem is resolved in a different fashion. In these places optometrists are trained--specialists in prescribing glasses who have a middle-level medical education.

Taking into account the experience accumulated in our brother countries, it was decided to set up an optometry service in our country as well. Here is what Dr of Medical Sciences Yu. Z. Rozenblyum, a prominent specialist in the field of vision correction, says:

"In Moscow training of optometrists began in an institution for raising the qualifications of middle-level medical workers. The students were selected from among the young people who already had middle-level medical educations. The base for theoretical studies was our Institute of Eye Diseases imeni Gelmgolts, for practical studies--the All-Union Scientific-Research Institute of Eye Diseases, the city ophthalmological hospital, and also a number of other establishments of practical health care.

"The program of study is planned to last 3 months. The students study geometric optics, basics of the physiology of vision, and the anatomy of the eye, and they learn the rudiments of first aid in eye disease. But the main thing is that they have skills in selecting eyeglasses for nearsightedness and farsightedness, eyes weakened by age, strabismus, after a cataract operation, and for poor vision. The course of study includes an acquaintance with a new direction of ophthalmology--correcting vision using contact lenses. In the shops of the Optika Production-Commercial Association, students become acquainted with the technology of manufacturing glasses.

"Leading specialists in the optics and selection of glasses, the physiology of vision, and clinical ophthalmology participate in the training of optometrists. Let me name a few of them: Prof E. S. Avetisov, L. S. Urmakher, Dr of Medical Sciences A. A. Kivayev, candidates of science E. D. Bayava, T. A. Korniyushina, T. S. Smirnova, experienced optometrist V. Yu. Batalova, and others.

"There have already been three graduating classes."

"Where are the graduates directed to work?"

"Seventeen polyclinics and 10 stores of Optika have opened up optometry offices. Our graduates work in these. The offices are equipped with the latest apparatus for choosing glasses--refractometers, ophthalmometers, projectors for symbols."

"How effective has this innovation been?" I asked Candidate of Medical Sciences E. N. Vilshanskiy, chief ophthalmologist of the city.

"The undertaking has completely paid for itself," he replied. "In polyclinics where these offices have opened, ophthalmologists are now free to devote more attention to treating patients. It is also simpler for patients to select glasses, to get a prescription for them. I will also note that the optometry offices both in the polyclinics and in Optika stores are intended only for the examination of adults."

"Hasn't the quality of work declined in connection with the fact that it is now being done not by physicians but rather specialists with middle-level medical education?"

"No. Optometrists, as experience shows, and they have already examined over 700,000 Muscovites, are no worse than physicians at prescribing glasses. After all the new specialists have to study this one operation which fully corresponds to the qualifications obtained in the school. Incidentally, not everyone passed the exams in the school. Only those who manifested a deep understanding were entrusted with the certificate which gives the right to work independently.

"Many of the graduates are not new to ophthalmology. Before entering this course they were nurses in ophthalmological offices. In the future such people will be given preference in choosing students for the courses."

"What is your opinion of the work of optometrists in optical stores?" I asked V. M. Ovchinnikov, deputy director of Optika Production-Commercial Association.

"For a long time, customers have been asking us to organize the prescription of glasses in Optika stores," he replied. "Now this has become possible. Optometry offices have opened in Optika stores No 7 (Onezhskaya ulitsa, 34), No 8 (Seleznevskaya ulitsa, 34), No 14 (Pervomayskaya ulitsa, 76), No 21 (Ulitsa Dovzhenko, 6), and a number of others.

"In contrast to polyclinics, the services of our optometrists require payment. The eye examination is not expensive--40 kopecks. Customers' response to the work of the offices is very good.

"Optometrists work in two shifts in the stores, it is possible to consult them throughout the entire day and evening. A prescription is made out on the spot, and the glasses, as a rule, can be bought directly in the store.

"We are looking forward to new graduating classes of optometrists in order to make it possible to open up offices in Optika stores which still do not have them."

12255

CSO: 1840/1098

FACTORY IMPROVES LABOR CONDITIONS, REDUCES ILLNESS RATE

Moscow VECHERNYAYA MOSKVA in Russian 8 Mar 86 p 2

[Article by G. Azhanova: "Factory Health Service"]

[Text] Workers of the Moskomplektmebel Factory are getting certificates of inability to work 1.5 times less often than last year. This is an important fact! Even more so for the collective, where hundreds of women work. It is no accident that reducing the illness rate here is placed on a level with achievements of the enterprise such as, for example, the high quality of production. Take a look at the association's own store, Mebel dlya kukhni, and you will immediately understand that the producers are doing a good job: the collections are eagerly purchased.

Raising the ability to work and improving people's health are the concern of both the administration and the aktiv of the trade union committee, its commission on social insurance. It was not always thus. An illness "curve" creeping upward was earlier an all but usual phenomenon.

"Not immediately, not all at once was it understood that it was necessary to take decisive measures," said N. Ogurtsova, chairman of the trade union committee. "An active position was taken in carrying out the Health Program. Its essence was an integrated approach to the endeavor."

We began by creating medical engineering brigades. Along with medical personnel, they included managers of the leading departments and services. This brigade controlled labor conditions by regular examinations, and achieved a reduction in the illness rate. Special attention was focused on those who were frequently sick.

For example, three women who attached furniture arms frequently caught colds. They were working not far from the gates, where drafts frequently blew about. On the orders of the commission this section was transferred to the second floor--and the colds eased off. There are many similar instances.

All critical observations are taken into account: They are recorded in a special journal, analyzed and summarized.

Once the workers suggested that the small rooms where they customarily ate, drank tea and rested be turned into comfortable tea rooms. They did everything with their own hands, and not just anyhow--with love, with diligence. Today there are four such tea rooms. Let us take a look at one of them.

The small comfortable hall is like an old-fashioned chamber. The carved benches and small tables are adorned with inlay work, soft light pours in from the window. The blazing samovar, the painted cups--it has everything necessary for a pleasant tea. And for a while, the workers of the shop themselves become the cordial hostesses here. Transport worker A. Amelina, putting on a little apron, invites her friends:

"Try a little tea, it is brewed a new way today, you will like the recipe--make it at home, too." And she adds: "Five minutes resting here will recharge you for several hours of a shift."

The enterprise has acquired several Zdorovye machines for preparing an oxygen cocktail, and now workers regularly drink these healing beverages. There is a psychological unloading room, where it is possible to remove the strain from work.

"Not all of the workers' suggestions are immediately implemented," said the chairman of the trade union committee. "Some require both time and money, but we can never rest in our concern for people's health."

"We are not inclined to flatter ourselves with what has been achieved and close our eyes to unresolved problems. We must frankly say that the factory health service, the health point, is far from perfect. It needs a physical therapy complex and a good sports arena. The level of noise in the shops is still high, and measures to eliminate it are being implemented too slowly. We understand very well that we must take a more active stand against such shortcomings. The times require this, as well as the decisions of the 27th Party Congress."

12255

CSO: 1840/1098

INFANT MORTALITY

Moscow ARGUMENTY I FAKTY in Russian No 3, 14-20 Jan 86 p 4

[Article by V. Romanenko: "For the Life and Health of the Child"]

[Text] "The newborn infant is in a very serious condition. Respiration has ceased, cardiac activity is failing... Resuscitation is being attempted." The resuscitation team at the neonatal center was fully prepared when it received this night emergency call from the maternity department. After only a few minutes we were there and immediately started the struggle for the life of the infant... Our efforts culminated in success. However, this marvellous and eternal sacrament of nature--the birth of a human being--does not, unfortunately, always turn out well.

The infant mortality rate worldwide still remains quite high. The following facts testify to this:

--the number of children dying during the first several days of life is the same as the number of adults dying before reaching the age of 30;

--infant mortality in the economically developed countries in the West is 10 to 20 per 1,000 births. In the developing countries this figure is 10 times higher;

--of the 122 million children born in the world in 1980, some 12 million died before reaching the age of 1 year, that is, one child in 10;

--each year about 1 million newborn infants die in the world from tetanus and another 1 million from malaria; 85 out of every 1,000 children die from infectious diseases.

In addition, in recent years an increase has been noted in the infant mortality rate in major cities in the West, associated with the increased effect of adverse social and economic factors. In Washington, for example, in 1980 infant deaths increased 10 percent, reaching more than double the average for the country.

Science Comes to the Rescue

We can see that the statistics are dismal. This is precisely why in recent times most of the economically developed countries have been giving more serious attention to the problems of lowering the infant mortality rate.

The basic causes of death among newborns are mainly asphyxia, traumas to the nervous system at birth, various kinds of pneumonia and congenital defects. Even as recently as 30 to 50 years physicians were powerless against them, but progress in medical science and the appearance of independent specialties in pediatrics such as neonatology are today making it possible to solve many of the complex problems in this field.

What, then, is neonatology? It is the science of resuscitating the newborn body. It is concerned with the study of the mechanisms involved in the development, prevention and treatment of critical conditions in newborn infants.

Proof of the importance attached in our country to the care of newborn infants can be seen in the creation of the state neonatal service and resuscitation centers for neonates and for prenatal diagnosis of the condition of the fetus, the extensive prophylactic measures to prevent pathology during pregnancy and birth, and the conducting of scientific research work on questions concerning care provision for neonates. The state's serious approach to questions of health care for mothers and babies can be seen from the fact that in the draft for the new CPSU Program the special attention that will henceforth be given to solving these problems is especially underscored.

The Past and the Present

Let us take a small excursion into history. In tsarist Russia the infant mortality rate was horrifying--273 per 1,000 births; that is, almost one-third of newborn infants died.

The enormous socioeconomic transformations that have occurred during the lives of Soviet people have made it possible to eliminate many of the causes that previously used to lead to the deaths of newborn infants.

However, time has set a number of new problems for which the specialists are actively seeking solutions. Scientific research in recent years has made it possible to single out a number of factors that may disrupt the normal course of intrauterine development and lead to disease or the death of the fetus. These include, in particular, an improper way of life, smoking, the use of alcohol, hereditary diseases and so forth. Today, pregnant women in the "high risk" group make up 17 to 30 percent of the total. Both throughout the world and in our country increasing importance is being attached to the problem of premature and post-term births. Accordingly, in our country more attention is being paid to careful observation of women during the pregnancy.

For this purpose we have an extensive network of obstetric clinics (more than 11,000), and prenatal diagnostic centers have been set up in most major cities.

The timely discovery of certain symptoms of pathology during the pregnancy makes it possible to foresee possible complications at birth, prevent certain birth traumas, and request help from a neonatal center in good time. These already exist in most of the major cities in our country and they are equipped with the latest domestic and foreign apparatus for artificial ventilation and

so forth. They have at their disposal special chambers with artificial microclimates in which it is possible to transport infants over any distance.

The rate at which the neonatal service is being developed in the USSR can be judged from the example of the Kazakh SSR where in the last five years alone some 54 special departments with a total of 1,400 beds, 3 neonatal centers, 10 resuscitation departments with a total of 90 beds, and a 25-bed barotherapy center have been organized for resuscitation of neonates with various kinds of diseases.

Neither should it be forgotten that the health of children depends largely on the health of their parents. In this connection, the role of medical genetic counseling is growing. This makes it possible to establish the probability and degree of risk for the newborn infant. More than 80 genetic counseling offices and an extensive network of "Marriage and the Family" counseling offices are now operating within the country. According to the research figures, these measures are making it possible to reduce by a factor of 12.6 the risk of children being born with various developmental defects.

Surgery... on the Fetus?

Yes, and this is no fantasy. Abroad they have already started to conduct surgery on the fetus in the mother's uterus. However, it is still experimental. And now the moral, ethical and medical aspects of these operations are being sharply discussed. For if thanks to the efforts of the surgeons such a child survives it will still have a retarded development.

Many foreign specialists recognize that the road taken by Soviet neonatologists is rather more effective. This is the earliest possible diagnosis of impairments in the development of the fetus and elimination of them with the use of drug therapy. Thus, for example, one of the most life-threatening conditions for the neonate is patent ductus arteriosus (one of the "congenital heart defects"), which was previously corrected by surgery. Today, this serious pathology is managed conservatively in 80 percent of cases.

It is already possible to talk about the practical successes of neonatology. However, it still faces many unresolved tasks whose resolution will make it possible to achieve a decrease in the infant mortality rate.

9642

CSO: 1840/1093

PLANNED TRAINING OF SPECIALIZED MEDICAL WORKERS

Moscow PRAVDA in Russian 19 Mar 86 p 3

[Article: "Let There Be Physicians": In Response to 'Pravda' Article"]

[Text] USSR Minister of Health S. Burenkov has informed the editor that the article by Professor V. Astvatsatryan, dean of Yerevan Medical Institute, "Let There be Physicians!", published 16 Dec 1985, raises urgent questions regarding physician training and proposes specific ways to expand undergraduate specialization within the Institute.

Depending on public health needs, physicians are now being trained in various specialties in 75 medical and 5 pharmaceutical VUZes. By the time they finish the Institute, medical and pharmaceutical VUZ graduates have been exposed to 14 different specialties.

More than 50 percent of medical VUZ graduates are assigned to work in primary public health units as uchastok physicians--therapists, pediatricians, emergency-care physicians, and rural physicians. Work in these public health institutions requires specialists with broad experience and fundamental theoretical and professional training.

Without a doubt, successful physician training greatly depends on admitting the best-prepared and, especially, the most career-oriented young people to the first course of a medical institute.

In 1985 the USSR Ministry of Higher and Secondary Special Education accepted the USSR Ministry of Health's proposal for open admission of lower and middle-level medical personnel with a certain amount of practical experience in public health institutions. This made it possible to enroll about 40 percent of all public health workers in medical and pharmaceutical institutes even in 1985.

In recent years, a new type of professional orientation for school students has been developed: medical classes are organized at external vocational training centers based at large medical institutions. In 1985, more than 20,000 general-education graduates became junior nurses specialized in patient care. An active type of professional orientation is the assignment of seniors

to spend summer vacation working in medical institutions as junior medical personnel.

The USSR Ministry of Health has now developed measures for 1986-1990 for fundamental improvement of public health specialists' qualifications and development of a material-technical, medical, and scientific base for higher medical colleges.

12809/9835

CSO: 1840/1132

SOVIET PUBLIC HEALTH CARE

Moscow ARGUMENTY I FAKTY in Russian No 10, 4 Mar 86 p 4

[Article by I. Borich: "The Health of the Working Man"]

[Text] Specialists have calculated that up to 90 percent of lost work time at our country's factories is associated with temporary incapacity resulting from illness and caring for sick children. It is quite obvious that reducing these losses will provide an enormous economic gain for the country and free up considerable reserves. Judge for yourselves: reducing the incidence of illness among industrial workers by a single day will give an additional 32.5 million work days annually, which is the equivalent of the entire work year for several enterprises.

However, let us qualify this at once by saying that it in no way follows from the above that concern for the health of the working man in the USSR is subordinate only to the single goal of increasing the return from production. It is indisputable that the funds allocated for so-called work medicine and improving working conditions are recouped. It has been calculated, for example, that each ruble spent to prevent silicosis provides a gain of R2.5. But economic motives are not decisive here. The main thing is that the health of each person in our country be regarded as an indispensable condition for his harmonious development and well-being in life. And this in its turn is a guarantee for the person's active labor activity. In the "Bases of Legislation for the USSR and the Union Republics on Public Health" it is emphasized that maintaining the health of the population is an obligation for all state organs and enterprises, establishments and organizations. Incidentally, no such requirement is made in any capitalist country. And even if entrepreneurs do do something to reduce the incidence of disease among the workers it is only in order to "squeeze out of them" as much as possible in order to make profits.

The true attitude toward the health of workers in the West can be judged from even the following example. The Yugoslav newspaper POLITIKA recently published a story about a 56-year-old worker from Dallas (in the United States) who, despite third-degree burns, was refused assistance at three hospitals. The reason? He had no insurance policy worth \$500 to \$1,500. "In America," the newspaper reports, "about 35 million people do not have insurance."

The Components of Health

In our country health care for the worker assumes the comprehensive resolution of a broad range of social tasks: improving working conditions, the retooling of many production facilities in line with the requirements of sanitation standards, reducing the volumes of heavy physical labor, dealing with air pollution in shops and industrial zones, the organization of public catering, the creation of treatment and health complexes right there in the industrial enterprises, and much else.

As a rule, the benefit is mutual wherever the proper attention and a statesmanlike attitude are shown toward the workers' health.

Take, for example, the Rodnikovskiy "Bolshevik" Mixer Combine. During the last five-year plan the incidence of disease among women--and they make up half the work force--was almost halved. Losses of work time associated with temporary incapacity were almost 15 percent lower than for the textile industry as a whole.

This result was achieved through complex work in all "fronts": over the five-year period the proportion of manual labor was reduced by a factor of 1.5 in the shops; many new automatic lines were brought into operation, with simultaneous improvement in working conditions; all workers were provided with special clothing and footwear; the plant polyclinic was reconstructed; a sanatorium, health center and sports complex were built; the workers' diet was improved (in addition to the dining room, special-diet dining rooms were opened in the shops); the kindergarten problem was fully resolved and, moreover, a significant decrease was achieved in the incidence of disease among the children (from 20.6 days in 1981 to 9.5 days in 1985), which substantially reduced losses of work time associated with caring for sick children.

We now have more than 1,400 medical-sanitation units whose attached hospitals can together treat more than 250,000 patients at the same time; and more than 50,000 health sections operate directly in the enterprises.

The measures implemented to maintain workers' health have made it possible to achieve quite good results. Thus, during the first 4 years of the 11th Five-Year Plan, compared with the same period in the 10th Five-Year Plan the average annual level of losses associated with temporary incapacity was reduced by 22 days per 100 workers.

What Is Hampering Us?

However, we are not prone to flattering ourselves with what has been achieved, or to closing our eyes to the many still unresolved problems. It must be frankly stated that today, unfortunately, medical-sanitation units have still not been organized at all major enterprises. And sometimes the plant medical services are far from perfect. The positive experience already available at some enterprises in the country in organizing health care for the workers is still being disseminated only slowly.

All of this is the reason why the incidence of disease among workers is not being reduced at the desired rates.

The recent CPSU Central Committee decree on the question of preventing disease and reducing the incidence of disease among workers is aimed at eliminating these and other shortcomings. It points, in particular, to the need to expand and strengthen the treatment and prophylactic base directly in the enterprises and to bring it closer to production. Provision is also made for increasing exactingness toward leading cadres for the implementation of measures to improve production and everyday conditions.

In this connection I would like to recall that a strict procedure is now in operation at all metallurgical enterprises, established by a decision of the collegium of the USSR ministries of ferrous and nonferrous metallurgy and the Trade Union Committee for Workers in the Metallurgical Industry: if in a plant (or shop) the incidence of disease among workers grows and there are increased losses of work time because of temporary incapacity, the collective cannot be awarded any winning place in socialist competition.

Improving the health of the workers will be helped by the spread of the "Health" goal-oriented comprehensive programs embarked upon in recent years at leading enterprises and in some sectors.

9642

CSO: 1840/1091

BRIEF

DISPUTE OVER MEDICAL CERTIFICATES--We once calculated that copying, recording and terminating medical certificates at the polyclinic took up an average of more than 12 hours of the physician's time each day. We found a solution to this problem that was convenient both for the physician and particularly for the patients. We started to issue medical certificates on a centralized basis. The physician simply told the patient that he was entitled to temporary time off work and then sent all the outpatient cards on visitors to the medical documents section. The person received his medical certificate on his next visit to the polyclinic. This procedure existed for several years and was to everyone's liking. But the oblast trade union council suddenly banned the innovation, considering that it was at variance with existing instructions. The absence of the hospital record, they say, causes doubt among workers as to the correctness of their own absence from work. Other reasons were offered for the supposed lack of order. But we had no misunderstandings over all those years. Moreover, control over issuance of medical certificates was improved. In general, where we and the patients saw only pluses the trade union workers saw some deviation from the "rule." [(signed) by A. Dopytayev, chief physician at the medical and sanitation department, Vologda] [Text] [Moscow SOVETSKAYA ROSSIYA in Russian 14 Mar 86 p 4] 9642

CSO: 1840/1091

BRIEFS

GUILTY PHYSICIANS PUNISHED--"Money for an Autograph." A notice published under this title on 9 January told how the Nukus city health department discovered gross violations in wages and additional sums paid to responsible parties for time they did not work. Here is what Uzbek Health Minister S. Bakhramov, Karakalpak ASSR Minister of Health A. Dosnazarov, and V. Dontsov, acting public prosecutor for the autonomous oblast, reported: "The facts have been confirmed. Z. Musayeva and B. Duseynova, chief stomatologist and chief pediatrician of the Karakalpak Ministry of Health, have been relieved of their positions. Zh. Dendibayev, chief physician of City Polyclinic No 1, and K. Ataniyazov and F. Kabirova, chief physicians of Nukus Stomatological and Children's polyclinics were given strict reprimands. Chief physicians of polyclinics Nos 2, 4, and 7 were also reprimanded. Criminal actions were instituted for violations of financing-economic discipline. The newspaper article has been discussed in medical councils of the Karakalpak ASSR Ministry of Health, all the oblast health departments of the republic, and the Tashkent Ispolkom Main Administration of Health Care." [Text] [By G. G. Neklessa] [Tashkent PRAVDA VOSTOKA in Russian 13 Mar 86 p 4] 12255

INNOCENT NURSE REINSTATED--Nina Ivanovna Rybalko has been working irreproachably for 30 years as a nurse in Dzhana-Dzherskaya District Hospital. But then she had a conflict with Acting Chief Physician N. Shcherbachenko. It was not her fault, Nina Ivanovna was devoted to her job, she was concerned for human health. But N. Shcherbachenko looked at this as undermining her own authority, she announced a strict administrative warning to the nurse at a 5-minute meeting and transferred her to other work. The editorial office asked the Kirghiz Ministry of Health to look into this case. Comrade Saaliyev, chief of the Administration of Cadres and Educational Institutions, reported that in the course of investigation, the facts laid forth in the letter by N. Rybalko were confirmed. Acting Chief Physician N. Shcherbachenko had permitted a violation of labor laws, and N. Rybalko was restored to her former place of work by order of the chief physician. Acting Chief Physician N. Shcherbachenko was reprimanded for the violations permitted, and the materials of the investigation will be discussed at the next medical council of the Sokulukskiy Central Rayon Hospital. [Text] [Frunze SOVETSKAYA KIRGIZIA in Russian 1 Feb 86 p 3] 12255

CSO: 1840/1095

USSR CONCERN FOR HUMAN WELFARE

Tbilisi ZARYA VOSTOKA in Russian 5 Jan 86 p 2

[Article by Irakliy Menagarishvili, first deputy minister, Georgian SSR Ministry of Health]

[Abstract] The new program of the CPSU continues to express the Party's deep commitment to the health and well-being of the Soviet people. The health care plans for the 12th Five-Year Plan, and thereafter to the year 2000, provide for further development of mass health-screening programs and, in particular, for maternal and child health services. While some 90 million rubles were spent in the 11th Five-Year Plan to improve health care in Georgia, the 12th Five-Year Plan has allocated 140 million rubles, with the anticipation that 6000 new hospital beds will be added in that time frame. Various measures have also been taken to insure coordination and cooperation between Georgian medical research establishments and those at the All-Union levels. Much attention will be accorded to combating alcoholism and other forms of drug addiction, and the equally important task of instilling good health habits in the young and old will not be neglected. With determination and motivation the health workers in Georgia can be expected to overcome all difficulties that they may encounter in fulfilling the Party's plans.

12172/9835

CSO: 1840/431-A

SERVICE THAT HEALS: NEW CONCEPT IN HOSPITALS

Moscow IZVESTIYA in Russian 20 Feb 86 p 3

[Article by G. Bikson, lecturer, Medical Institute, Riga]

[Abstract] The Riga City Hospital No 7 has developed a unique concept of service to its staff and patients by providing them with everyday amenities. These include on-site shops, restaurants, banks of public telephones, barbers, a movie theater, tailors, TV rentals, and so forth. This approach has succeeded in making the hospital a success with both the physicians and

other medical personnel and has kept job hopping to a minimum. In addition, the patients are assured a pleasant stay that offers considerably more than expert medical care and yet contributes so much to the healing process. Outpatient services are also being expanded in the physical therapy section, and it is anticipated that soon a fee-for-service consultation polyclinic will be opened.

12172/9835
CSO: 1840/432-B

INCREASED ATTENTION TO PUBLIC HEALTH OBJECTIVES

Alma-Ata NARODNOYE KHOZYAYSTVO KHAZAKSTANA in Russian No 12, Dec 85
pp 48-49

[Article by B. Nurgaziyev, Director of Administration of Capital Construction KazSSR Ministry of Health]

[Abstract] The sorry state of construction of new facilities for the Public Health Program is lamented. About one fourth of the projected constructions is not completed on time. One of the main reasons for this, beside the lack of sufficient funding, is poor design documentation requiring multiple revisions and non-adherence to projected schedules. Creation of a specialized Institute for Construction Design for Public Health Facilities or establishment of a Branch of the existing Main Institute of USSR Ministry of Health was advocated to solve the design difficulties. Penalties were prescribed for non-fulfillment of projected schedules by subcontractors. Presently, it appears that they get off scot-free even when they are responsible for construction delays.

7813/9835
CSO: 1840/388

PROSPECTS FOR FURTHER IMPROVEMENT IN AMBULATORY MEDICAL EMERGENCY SERVICE (SKORAYA POMOSHCH)

Alma Ata ZDRAVOOKHRANENIYE KAZAKHSTANA in Russian No 11, Nov 85 pp 11-13

[Article by Yu.A. Rubezhanskiy, F.I. Rakhman and G.N. Komendra, Tselinograd Municipal Medical Emergency Hospital]

[Abstract] A brief analysis is provided of the operation of the ambulatory teams at the Tselinograd Emergency Hospital, noting that this hospital serves a population of 300,000. The ambulatory system has been organized and improved to the extent that at present 88% of the calls are made by a physician, despite the fact that the number of calls per 1000 people per year

has increased from 341.3 in 1976 to 386.2 in 1984. In 97.3% of the cases, a team is dispatched within 4 min of the call, and in 86% of the cases reaches its destination within 15 min. Constant training and monitoring are provided to assure that the medical care that is given is at the highest possible level, and that the available medical resources are utilized to the fullest in a cost-effective manner.

12172/9835
CSO: 1840/1099

TRENDS IN DEMOGRAPHIC PROCESSES IN VARIOUS GEOECONOMIC ZONES OF KAZAKHSTAN

Alma Ata ZDRAVOOKHRANENIYE KAZAKHSTANA in Russian No 11, Nov 85 pp 14-17

[Article by T.K. Kalzhekov and O.S. Sakbayev, Department of Social Hygiene and Public Health Administration, Scientific Research Institute of Regional Pathology, Alma Ata]

[Abstract] An analysis is presented of some of the more important demographic trends in Kazakhstan, and the manner in which they may impact on health care in the republic. It appears that urbanization is proceeding more rapidly in Kazakhstan than in the other Central Asian republics, although the birth rate remains much higher in the rural areas where the native Kazakh population predominates. The sex ratio has improved in the period from 1959 to 1979 in Kazakhstan, with women now accounting for 51.7% of the population (vs. 53.3% for the USSR). Brief notations are made of the overall decline in the birthrate, largely due to the fact that the 20-24 year-old segment of the population accounts for only 5% of the total, as well as of internal migrations and immigrations from other parts of the USSR with developments of the various geoeconomic areas within Kazakhstan. All of these factors point to the need for close monitoring of such changes to ensure optimal delivery of medical care in Kazakhstan.

12172/9835
CSO: 1840/1099

DISPENSARIZATION, MASS HEALTH SCREENING IN TARGET REGIONS OF KAZAKHSTAN

Alma Ata ZDRAVOOKHRANENIYE KAZAKHSTANA in Russian No 11, Nov 85 pp 25-26

[Article by B.N. Aytbembetov, N.I. Sitenko and A.P. Belchikov, Republic Clinical Hospital, Kazakh SSR Ministry of Health]

[Abstract] Eight target regions for mass screening yearly health examinations, were delineated in Kazakhstan in July, 1983, with analysis of the experience showing that a complete medical examination required from 30 min to 5 h. In general, a given clinic could handle 80 to 100 patients per day, resulting in coverage of 79.9% of the population of 461,148 in 1984 in those regions. The percentage of those that underwent the complete course of examination, including laboratory studies, was 76.4%. The results showed that 52% of those screened were categorized as healthy, 27% as having minor problems and essentially healthy, and 21% as sick and requiring further medical attention. The difficulties in implementing the mass screening program were largely predicated on the unpreparedness of the medical personnel and, perhaps, lack of proper motivation, as well as in a greater demand for laboratory time. It appears that more efficient mass screening programs can be formulated by defining smaller target areas and more efficient organization of the health services. An equally important factor is the institution of health education for the public and, in the final analysis, the need for full support from local party, government, and social organization cannot be underestimated.

12172/9835

CSO: 1840/1099

RADIATION BIOLOGY

SELECTED SYNOPSIS OF ARTICLE IN 'JOURNAL OF THE BELORUSSIAN SSR ACADEMY OF SCIENCES: BIOLOGICAL SCIENCES SERIES', Nov-Dec 1985

Minsk VESTSI AKADEMII NAVUK BSSR: SERYYA BIYALAHICHNYKH in Russian No 6, Nov-Dec 85 p 125

UDC 577.391+612.822.1

DEPENDENCE OF POSTRADIATION CHANGES IN RIBONUCLEASE ACTIVITY ON THE ENZYME-INHIBITOR COMPLEX AND THE STABILITY OF LYSOSOME MEMBRANES

[Synopsis of article by K.V. Fomichenko and G.P. Petrusenko, pp 55-60]

[Text] Changes in the activity of ribonucleases exhibiting optimum action in alkaline medium (RNAase I), elicited by fractional irradiation of Wistar rats by intermediate-energy neutrons at a general dose of 0.2 Gr, are the result of disturbance of the state of the enzyme-natural inhibitor complex in certain postradiation periods.

In similar conditions, changes in the activity of another form of ribonucleases that manifest their maximum action in an acid medium (RNAase II) occur due to disturbance of the stability of lysosome membranes.

The nature and intensity of changes in both forms of depolymerases of ribonucleic acids following the action of radiation were different in many ways in the brain and liver. 1 Table, 18 bibliographic references.

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11004/9835

CSO: 1840/414

VETERINARY MEDICINE

BRIEF

NEW MASTITIS DETECTION METHOD--Mastitis is quite a widespread disease among animals. A sick cow's milk which gets into a common container, like one rotten apple in a barrel, can spoil all the good milk. The staff members of the Chair of Biophysics at the Belorussian State University imeni V.I. Lenin have developed an original method for determining mastitis in cows. Only a small amount of fluorescent (luminescent) agent has to be added to a prepared sample of milk, and the milk "will light up". This will tell sensitive instruments whether the animal is sick or not, as well as the stage of the disease. This new method is twice as sensitive and 3.5-fold more accurate in detecting the early stages of mastitis in cattle than the existing chemical methods. This new development of the Belorussian scientist may be used in checking milk quality first-hand at milk farms in the kolkhozes and sovkhoses as well as at enterprises where the milk is received. ["Light Makes the Diagnosis"] [Text] [Minsk SELSKAYA GAZETA in Russian 24 Jan 86 p 2] 12525/9835

CSO: 1840/328

CONFERENCES

BRIEFS

CONFERENCE ON LASER USE--Paths for the further collaboration of medical men, physicists and engineers, engaged in the development and introduction of optical quantum generators, were outlined at the All-Union Conference on "The Use of Lasers in Oncology". The conference in Tashkent concluded its work on October 31st. S.D. Pletnev, doctor of medical sciences and professor of the Scientific Research Institute of Oncology, said: "The laser's potentialities are unlimited." The laser is now being introduced into many fields of medicine, including oncology. This is explained by the fact that laser beam use in medicine is harmless for the human body and it promotes the rapid recovery of a patient. Modern quantum engineering is used successfully for early diagnosis as well. The exchange of experience in Tashkent and familiarization with the work of the Uzbekistan specialists have provided an opportunity to determine the outlook for improvement of domestic laser equipment and for increased efficiency of laser use in medicine. ["Laser Treatment"] [Text] [Tashkent PRAVDA VOSTOKA in Russian 1 Nov 85 p 2] 12525/9835

CONFERENCE ON POLISH DRUGS--The conference in Ashkhabad on problems of using the new Polish drugs, produced by the People's Republic of Poland, in dermatology, pulmonology, psychiatry and neurology ended on November 13th. Over 150 leading specialists of scientific research and treatment institutions from all oblasts and cities of Turkmenistan participated in the work of the conference. Lively interest and extensive discussion among scientists and practical workers were evoked by the lectures given by Polish scientists: A. Novak, professor and doctor of medical sciences, and M. Shmidt, docent and doctor of medical sciences. Samples of the newest preparations were demonstrated. "Polish drug preparations find a wide application in medical practice and produce a good effect in treating various diseases," said G. Yusupov, deputy minister of the Turkmen SSR Ministry of Health. The conference will promote further expansion of scientific and business contacts between Polish and Soviet specialists. ["Polish Specialists in Turkmenistan"] [Text] [Ashkhabad TURKMENSKAYA ISKRA in Russian 15 Nov 85 p 4] 12525/9835

CSO: 1840/329

BRIEF

12TH CONFERENCE OF PHYSIOLOGISTS--The progress of a number of clinical medicine fields is largely determined in principle by the results of studying the very fine interaction mechanisms of the brain cortex and internal organs in man. The basic research in this field of scientific knowledge and original experiments have opened up a wide area for finding more efficient methods of treating such ailments as stenocardia, hypertension and ulcer conditions. The 12th All-Union Conference of Scientists and Physicians of Applied Medicine, which opened yesterday at the House of Scientists imeni M. Gorkiy, is devoted to the physiological and pathological problems of the more important organs in the human body. The conference was organized by the USSR Academy of Sciences and the USSR Academy of Medical Sciences. The participants--about three hundred--are discussing at the plenary and section meetings the problems of central nervous system effects on internal organs and the newest studies in the area of the physiology of biologically active agents. Reports dealing with the development of the creative legacy of Academician K.M. Bykov, the eminent scientist-physiologist, are of great interest. The urgent problems of labor and sport physiology as well as ecological physiology and man's adaptation to environmental changes will be considered. ["All-Union Conference of Physiologists"] [Text] [Leningrad LENINGRADSKAYA PRAVDA in Russian 23 Jan 86 p 3] 12525/9835

CSO: 1840/328

ONCOLOGICAL CONFERENCE IN RIGA

Tallinn SOVETSKAYA ESTONIYA in Russian 14 Jan 86 p 5

[Article by I. Belchikov, chairman, Estonian SSR Scientific Society of Oncologists, Honored Physician of the Estonian SSR]

[Abstract] The 6th Baltic Oncological Conference was held in Riga following a tradition to hold a conference of oncologists of the Baltic republics every 4 or 5 years in one of the capitals of those republics. It was attended by some 236 oncologists, including guests from Moscow, Leningrad and other parts of the USSR. The main topic of the conference dealt with cancer prevention and the role of mass screening. B. Biletov, chairman of the Main Administration of Oncological Services of the USSR Ministry of Health, pointed out that in 1984 some 130 million people had undergone the mass screening process. Other topics covered at the conference dealt with new diagnostic modalities, including an automated system (entitled KASMON) for all encompassing screening developed by the Latvian oncologists. It was also announced that the 6th All-Union Conference of Oncologists will be held in Leningrad in 1986.

12172/9835

CSO: 1840/433-B

UDC 577.21

6th SYMPOSIUM OF USSR AND FRG BIOLOGISTS ON GENOME STRUCTURE AND FUNCTION

Moscow VESTNIK AKADEMII NAUK SSSR in Russian No 2, Feb 86 pp 95-100

[Article by P.M. Rubtsov, candidate of biological sciences]

[Abstract] The 6th Symposium of the Biologists of the USSR and the Federal Republic of Germany was held on May 16-19, 1985, in Leningrad and dealt with "Molecular Variety in the Organization and Expression of the Genome". From the Soviet side, these meetings are organized by Academician A.A. Bayev,

and from the German, by Professor G.G. Zachau [sic], director of the Institute of Physiological Chemistry, Physical Biochemistry and Cellular Biology of the University of Munich. The 6th Symposium was attended by more than 100 scientists of the Institutes of Molecular Biology and of Cytology of the USSR Academy of Sciences, and by 15 German scientists. The program consisted of 35 lectures and approximately 70 poster presentations. Among the topics covered were the problems of the structure and transcription of the bacterial genome and genetic engineering, the structure and expression of the eukaryotic genome, oncogenes and molecular oncology, chromatin structure, and structure and function of transposons of the eukaryotes. On the whole, the Symposium is a success, contributing much to further scientific cooperation between the USSR and FRG.

12172/9835

CSO: 1840/424

MISCELLANEOUS

UDC 612.014.42.002.5.002.237

INCREASED INTERFERENCE RESISTANCE OF BIOTECHNICAL MEASURING SYSTEMS

Moscow IZMERITELNAYA TEKHNIKA in Russian No 1, Jan 86 pp 38-39

[Article by S.Yu. Bannikov and B.I. Podlepetskiy]

[Abstract] Based on literature data, an analysis was performed of the possibility of using the integral microsystems technology to increase interference resistance of electrophysiological determinations from the surface of a biological object. There are three types of resistance sources: biological, internal and external (instrumental). Improved interference resistance in biotechnical measuring system is achieved by technical, systematic, schematic and construction methods. Microelectronic methods and means are used effectively to improve interference resistance of biotechnical instruments. Use of contact electrodes makes it possible to increase 4-5 fold the coefficient of synphasic resistance with an almost complete suppression of the drift effect of electronic potential, even in cases where direct contact with the skin is impossible (as in burn cases). Figures 2; references 10: 9 Russian (2 by Western authors), 1 Western. (by a Russian author).

7813/9835
CSO: 1840/390

BIOMAGNETISM AND HEALTH

Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 15 Mar 86 p 4

[Article by Yu. Kholodov, doctor of biological sciences]

[Abstract] All living systems produce their own magnetic fields, which reflect the various physiological states and biochemical changes in the system under investigation. In the case of humans and animals, detection and analysis of these magnetic field brings a better understanding of body functions and, what is also very important, any functional disorders can

also be detected. The methods that are now available for the detection of such weak magnetic fields have been miniaturized and easily lend themselves to medical practice, particularly because they are completely safe and require no radiant energy delivery to the patient of healthy subject. As such, biomagnetism monitoring should become indispensable in mass screening programs.

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CSO: 1840/429-A

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